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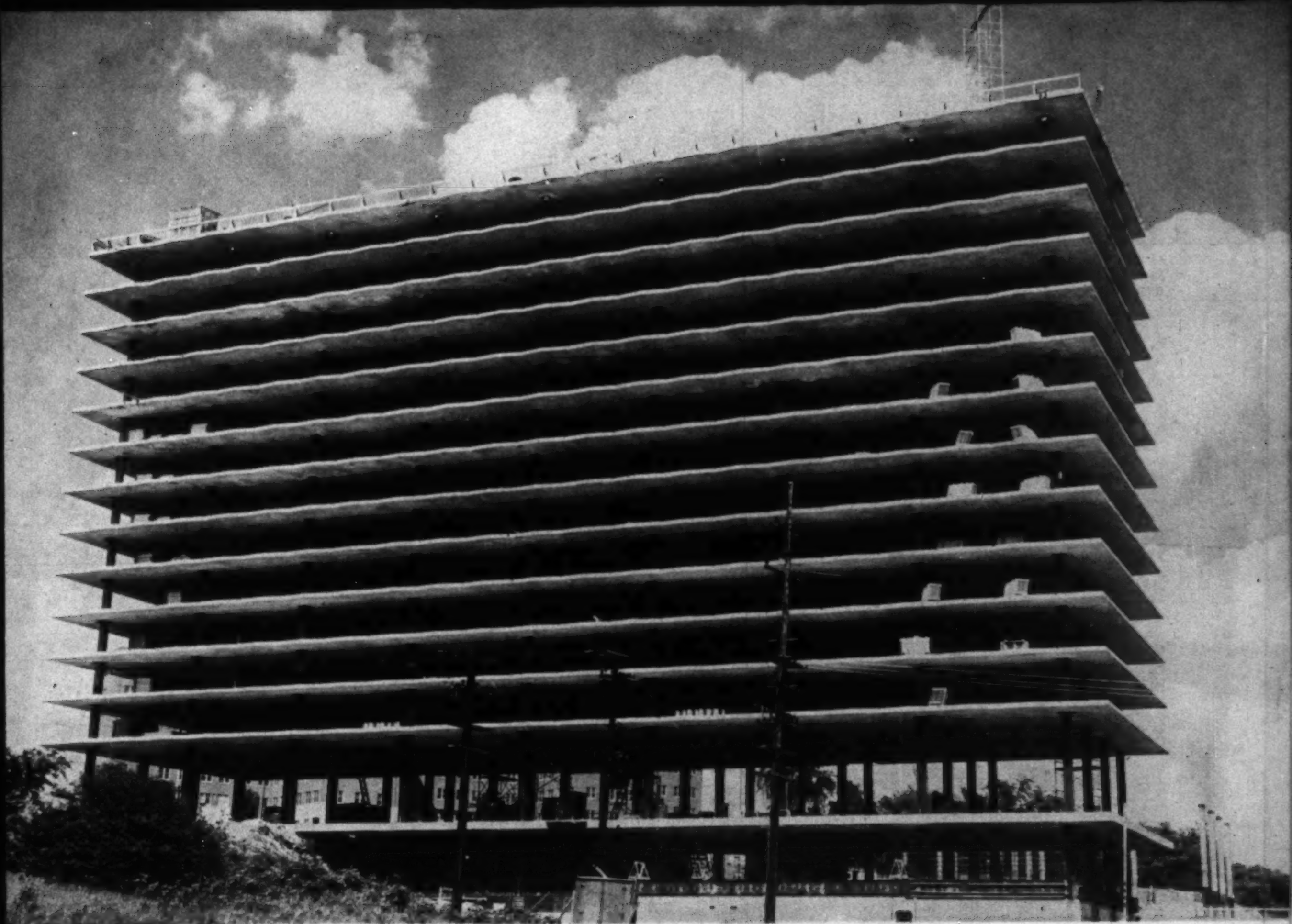

Jacking up an apartment house *p.44*

A McGRAW-HILL PUBLICATIO

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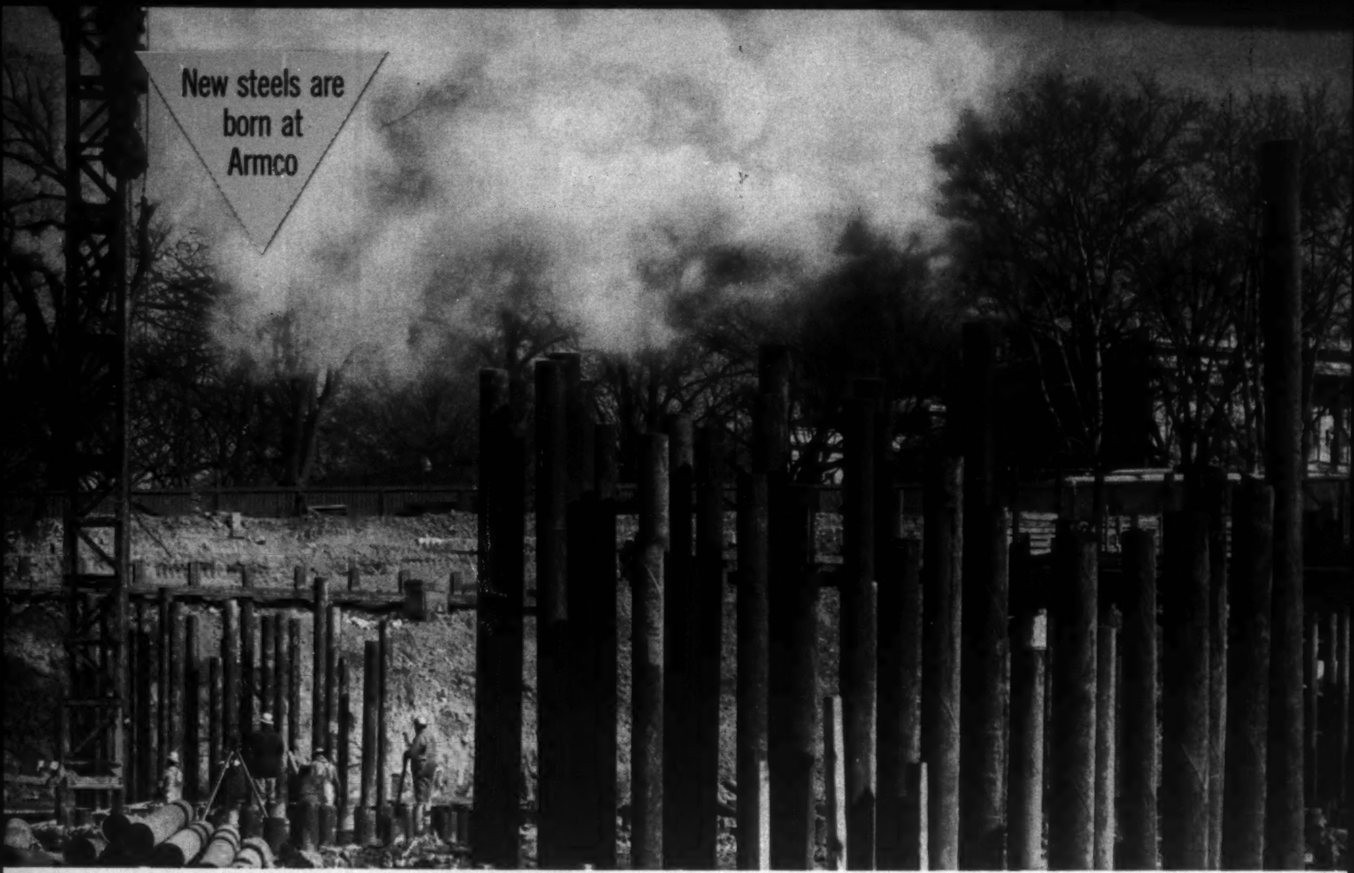


Architect: J. George Stewart, Architect of the Capitol
Associate Architects: Harbeson Hough Livingston & Larson, Philadelphia
General Contractors: McCloskey & Company, Philadelphia

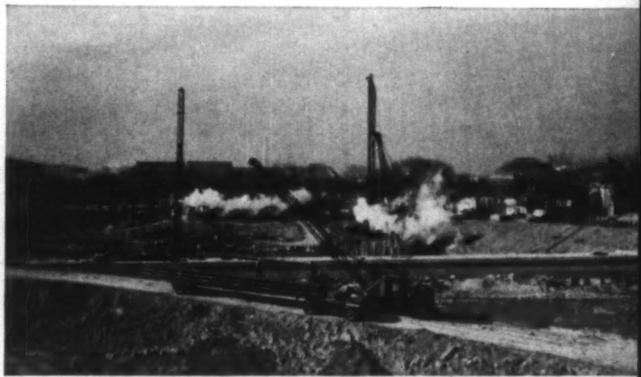
New Capitol Hill Building Rests on Armco Pipe Piles

The new House of Representatives Office Building now under construction in Washington, D.C., costing an estimated $66-million, is supported by almost 86 miles of welded steel Armco Pipe Piles.

These pipe piles have an outside diameter of 10¾ inches and a wall thickness of 0.279-inch. The piles were designed for a 55-ton loading, and various piles were tested to 125 tons with a net settlement of from 0.25- to 0.279 inch. These tests indicated 50- to 60-foot long piles would be required. About 9,000 Armco Pipe Piles were driven for this project with a Vulcan (Model 0) hammer.

This "H"-shaped building, providing 169 three-room suites for members of the House of Representatives as well as numerous other facilities, is scheduled for completion in 1963.

For illustrated factual literature on Armco Pipe Piles, write us. Armco Drainage & Metal Products, Inc., 6510 Curtis Street, Middletown, Ohio.



Sixty-foot lengths of Armco Pipe Piles are delivered at the site of the new House of Representatives building.

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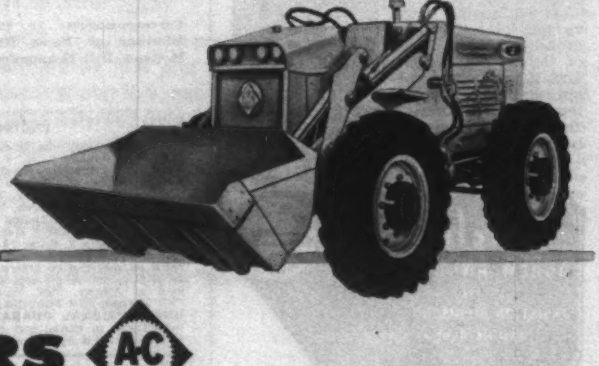
77 maximum hp (gasoline)
76.5 maximum hp (diesel)
Buckets — 1, 1⅛, 1½ and 2 cu yd



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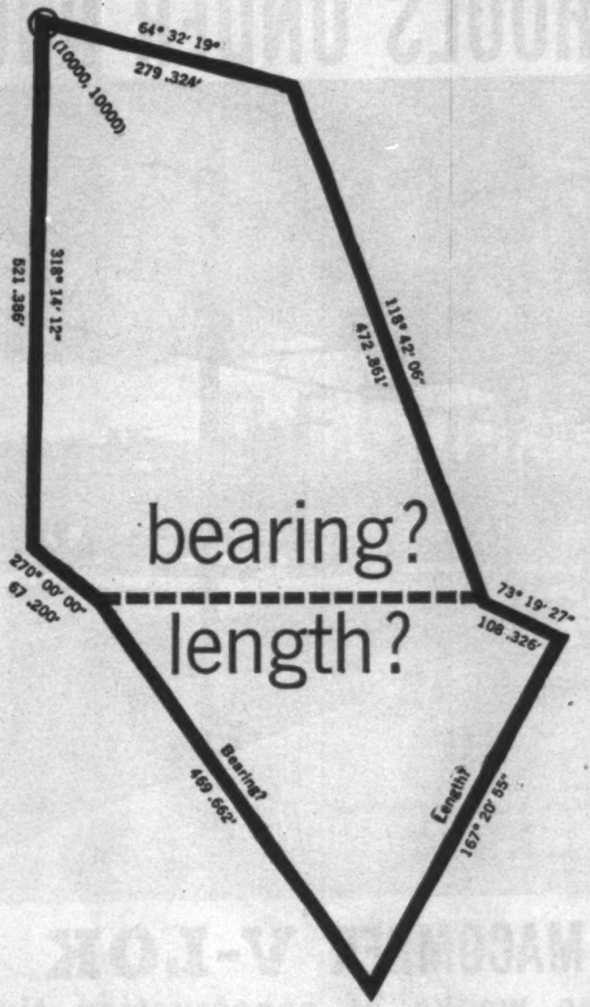

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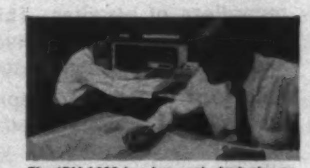

The IBM 1620 is a low-cost, desk-size engineering computer with features previously found only in larger systems. It offers solid state design, magnetic core storage and high-speed internal computing performance. Its versatility and ease of operation recommend it for such engineering applications as highway cut-and-fill calculation, bridge design analysis, earthwork design and many others.

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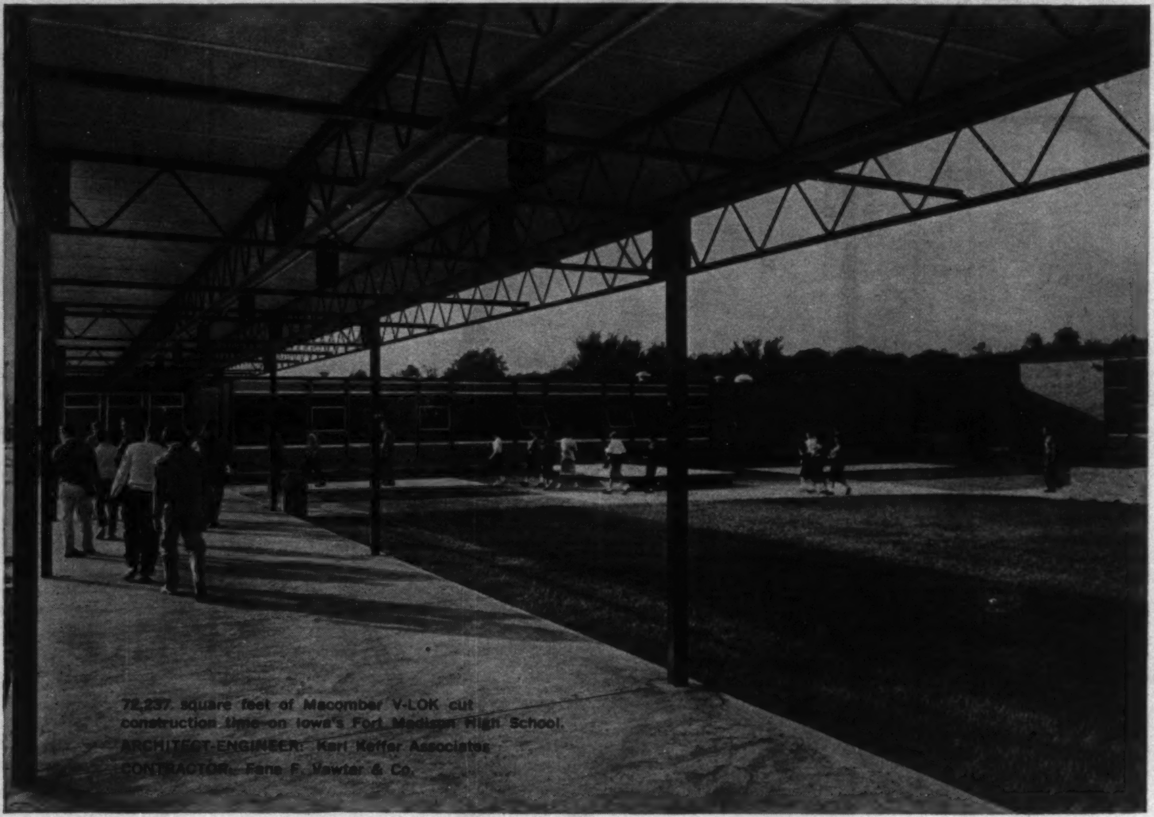

72,237 square feet of Macomber V-LOK cut construction time on Iowa's Fort Madison High School.
ARCHITECT-ENGINEER: Karl Keffer Associates
CONTRACTOR: Fane F. Vawter & Co.

MACOMBER **V-LOK**
saves weeks of construction time

V-LOK rigid, interlocking steel framing erects in days with roof on — ready for interior finishing, regardless of weather. This high-strength structure combines quality with overall construction economy; and no-waste-motion assembly speeds occupancy.

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BARKLEY DAM
CUMBERLAND RIVER DEVELOPMENT
U.S. ARMY CORPS OF ENGINEERS
PRINCIPAL FEATURES

B.F.Goodrich helps change the face of a river

40 TONS OF CONCRETE ride to the bottom of Barkley Lock on B.F.Goodrich Rock Service tires. These gigantic tires (over 6 feet high) are built with B.F.Goodrich Flex-Rite Nylon cords that withstand double the impact of ordinary materials, resist heat blowouts and flex breaks. The new B.F.Goodrich Cut Protected tread compound guards against the kind of severe rock cuts and chipping found on such projects as Barkley Lock.

Hundreds of B.F.Goodrich tires—and other products—speed development of Cumberland River Basin

TWENTY-FOUR miles east of Paducah, Kentucky, they're changing the face of the Cumberland River. Here Barkley Dam will rise to a height of 155 feet, forming 62,000-acre Lake Barkley—key units in the development of the Cumberland River Basin.

This $182-million project (including construction of a lock, power plant and canal) will provide flood control, improve navigation and produce 600-million kilowatt-hours of energy a year. The completed lock will have a chamber 110′ x 800′ and a lift of 52′ to 57′. Five outmoded locks will be eliminated.

On the job: Tecon Corporation, general contractors of Dallas, Texas, who have chosen B.F.Goodrich tires, industrial products, protective clothing and footwear 100%. BFG Special Contractor's Representatives work hand-in-glove with Tecon on all phases of Barkley Construction.

This B.F.Goodrich report continues ▶

Smileage
B.F.Goodrich
Goodrich

Wherever you look at Barkley Dam you'll see B.F.Goodrich tires on the job

HELPING Tecon Corporation meet the challenges of the $182-million Barkley Dam project are a corps of B.F.Goodrich on-the-scene specialists and scores of different B.F.Goodrich products.

Giant BFG Rock Service tires haul concrete and rock. Rock Logger tires deliver fly ash. B.F.Goodrich All-Purpose tires support a "cement hog." Traction Express and Power Express tires bring in supplies. Power Grader and Universal tires move earth.

This is only the beginning. You'll find B.F.Goodrich hose delivering air, water, even dry cement. BFG V-belts drive pumps, crushers and vibrator screens. Conveyor belts carry sand and aggregate. And the 700 Tecon men on the project wear B.F.Goodrich protective clothing and footwear.

To keep the whole job humming, B.F.Goodrich provides special maintenance and service facilities, all part of the new B.F.Goodrich Unified Contractor Program. If *you* want to cut the cost of doing business, it will pay you to talk to B.F.Goodrich. Your Smileage dealer is listed in the Yellow Pages. Or write *The B.F.Goodrich Company, Akron 18, Ohio.*

Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

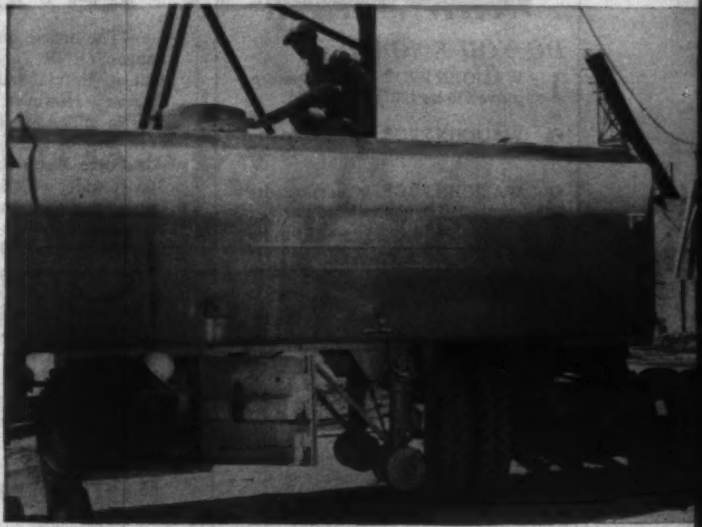
B.F.Goodrich

Smileage!

AT BARKLEY LOCK, workman rough up concrete surface for new pour. BFG hose carries air and water under high pressure. Yellow rainsuits and footwear protect men. B.F.Goodrich Unified Contractor Program provides Tecon with everything from tires to boots to belts.

◀ **24 HOURS A DAY, 6 DAYS A WEEK,** trucks haul tons of rock out of Barkley Dam excavation. Haul roads are steep and strewn with abrasive rock. Yet B.F.Goodrich Rock Service tires are so rugged that many actually can be retreaded up to 3 times on this operation. Note BFG Servicemobile, at work as usual.

CONSTANT TIRE INSPECTION by B.F.Goodrich on-the-job service men avoids delays, lowers operating costs. Servicemobile is equipped with all the latest power tools. Complete stock in B.F.Goodrich Tire Service Building (built for this project) includes BFG batteries used in all Tecon motorized equipment.



SPECIALLY BUILT TANK TRUCK delivers 30 tons of fly ash. Tecon Corp. chose rugged B.F.Goodrich Rock Logger tires because the extra-thick tread defies rock cuts, gives positive traction in forward or reverse. 125 pieces of equipment work on Barkley Dam which will have an overall length of 10,020 feet.

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NEW
BLUE BOOK

B. F. GOODRICH CONVEYOR BELTS AND HOSE arrive at Barkley Dam on tractor-trailer equipped with Power Express and Traction Express tires. (Users call the Traction Express the "100,000-mile tire.")

B. F. GOODRICH ALL-PURPOSE TIRES (as at home in the rough as on the highway) give mobility to "cement hog" that carries dry cement to batch plant. BFG contractor's program helps Tecon simplify purchasing, eliminate confusion, cut equipment and operating costs.

OFF-THE-ROAD TIRES BY B.F.Goodrich

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Reader Comment

Hangar with 183,000 sq ft of column-free floor area is . . .

Bigger Than Orly's New One

Sir—The article on the new Paris Orly hangar (ENR July 21, p. 49) states that it "is claimed to be the world's largest." However, in 1954, Albert C. Martin and Associates designed an aircraft modification hangar at Edwards Air Force Base, Calif., 600 ft long by 305 ft wide, which has a total of 183,000 sq ft of obstruction-free floor area, compared with the 129,000 sq ft of the new Orly hangar. The lower chords of the 305-ft roof trusses are 75 ft above the floor, and the entire roof structure is designed to sustain five-ton crane loads suspended anywhere in the building.

A 200-ft jack truss spanning the opening in the sidewall (see illustration), which carries reactions from seven of the 305-ft roof trusses, is interesting in that the largest rolled wide-flange section available (14 WF426) proved to be just adequate to resist the upper and lower chord stresses. It was thus possible to avoid using built-up sections for the primary structural framing members.

Since the hangar is in Zone 3 seismic area, the design incorporated six A-frames on one side for lateral bracing. They were placed exterior to the skin of the building so as not to encroach upon the clear area within the building.

John Day
Structural Engineer
Albert C. Martin & Associates
Los Angeles, Calif.

For More Effective Foreign Aid

Sir—I concur with the general sentiment expressed in the editorial "No More Aswans," (ENR July 7, p. 96) but there are some deviations which I believe should be brought to mind. And I do this from an over-all knowledge of what makes foreign aid tick since our organization has been engaged in the business of investigating and disseminating information on foreign work for nearly fifteen years. Also, we have members in more than sixty countries and islands throughout the world, so there is hardly a corner of the earth that our men have not dug up or built upon.

My principal criticism of our government's foreign relations policies, as they relate to the American construction industry, is that they have underestimated the value of having American firms and personnel represent the best, not only of American industry, but the American way of life, to the citizens of nations overseas.

I agree that the awarding of contracts to U. S. firms and the staffing of these projects entirely with U. S. personnel overseas would, in some respects, defeat the purpose of foreign aid; but conversely, the promiscuous granting of funds for construction projects and the continuance of the preponderance of contracts to foreign firms would be equally detrimental to the best interests of our nation. In any event, I cannot believe that allowing ourselves to be blackmailed into financing various projects according to the whims of the ever-changing political leaders of our foreign neighbors can ever bring about a satisfactory solution to the Communist problem.

It is my belief, and I can speak with the confidence of our world-wide membership, that a much more businesslike approach to foreign aid is going to have to be initiated before any real tangible results can be felt.

Allowing the Russians to get a superior propaganda advantage on the Aswan Dam is unforgivable. However, this situation continues to exist on far less spectacular projects the world over. In Indonesia, for example, a major oil company was literally blackmailed into sponsoring and financing two-thirds of a road job awarded to a Russian firm in order to obtain the right to lay a pipeline in that country.

I might also point out that the much-publicized steel mills in India that were constructed by Kaiser Engineers at Jamshedpur and by the Russians at

(*Reader Comment continued p. 16*)

"No corrosion, negligible maintenance and continued high carrying capacity with Transite Pipe."

—F. A. Anderson and C. L. Johnson,
Johnson & Anderson, Inc., Pontiac, Mich.

"First cost and economical operation make Johns-Manville's Transite Pipe a practical long-term investment," say Messrs. Johnson and Anderson, consulting engineers, pictured at right. "Despite this economy its performance is superior in many ways. There's no corrosion, negligible maintenance and continued high carrying capacity . . . helping through the years to save in the operation of the system. These many economies make it easier for communities to build and expand their water systems."

Transite's maintained carrying capacity keeps pumping costs low. Its strength, durability and corrosion-resistance cut maintenance—provide years of trouble-free service. Further savings are effected by the sure coupling method that assures a tight seal at every joint. Add to this Transite's natural interior smoothness and you see why it helps reduce community water system costs. Let us send you "Facts and Data for Engineers" book. Write Johns-Manville, Box 14 (EN-8), New York 16, N. Y.

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GUSTIN-BACON reports
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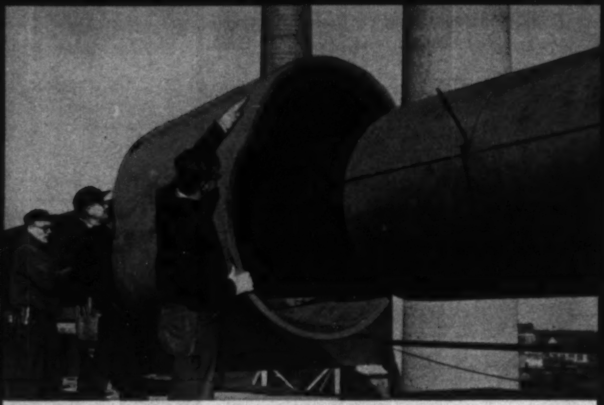

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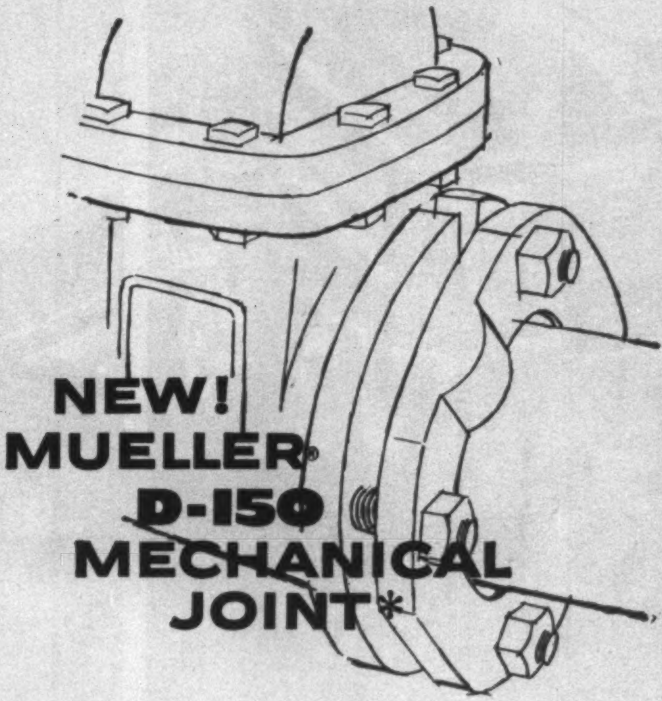

NEW! MUELLER® D-150 MECHANICAL JOINT*

. . . fits all classes of cast iron pipe regularly used!

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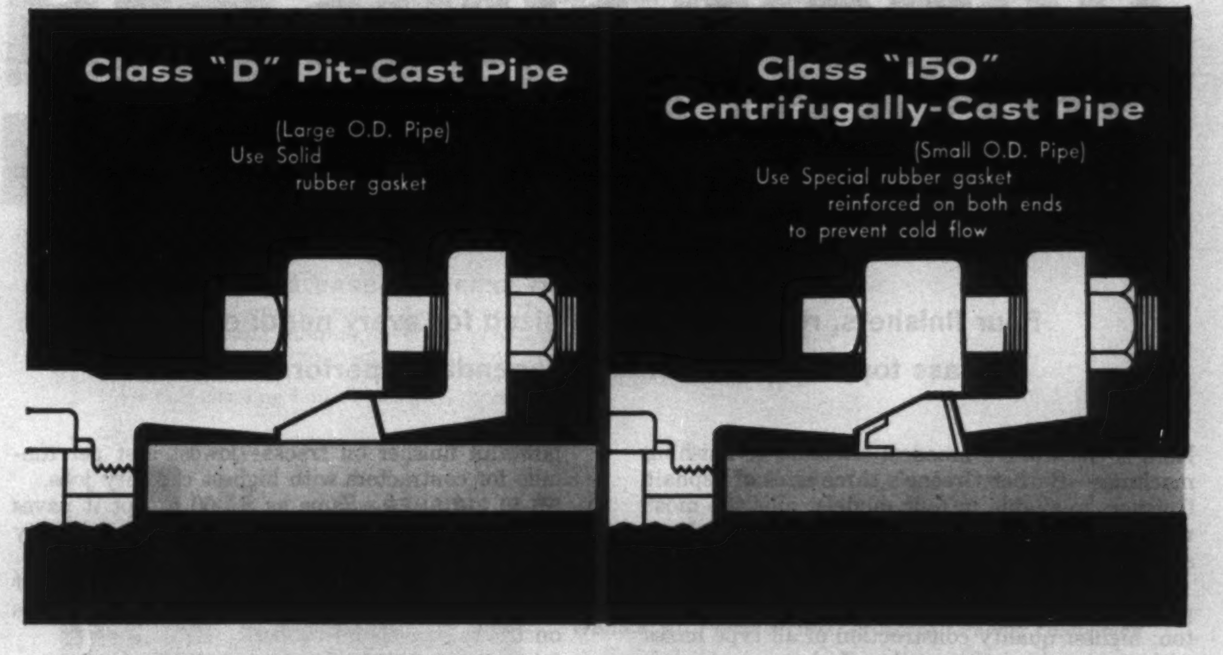
These two gaskets, each accurately sized to the class of pipe, make installations faster, simpler and cheaper. The joints last longer, too, because the accurate fit prevents cold flow and future leaks.

Write for complete information and specifications.



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Use Solid rubber gasket

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(Small O.D. Pipe)
Use Special rubber gasket reinforced on both ends to prevent cold flow

* Now available on Mueller AWWA Improved Fire Hydrants and AWWA Gate Valves. Stock just one type of hydrant or valve for replacement installations in either the new or older sections of your system.

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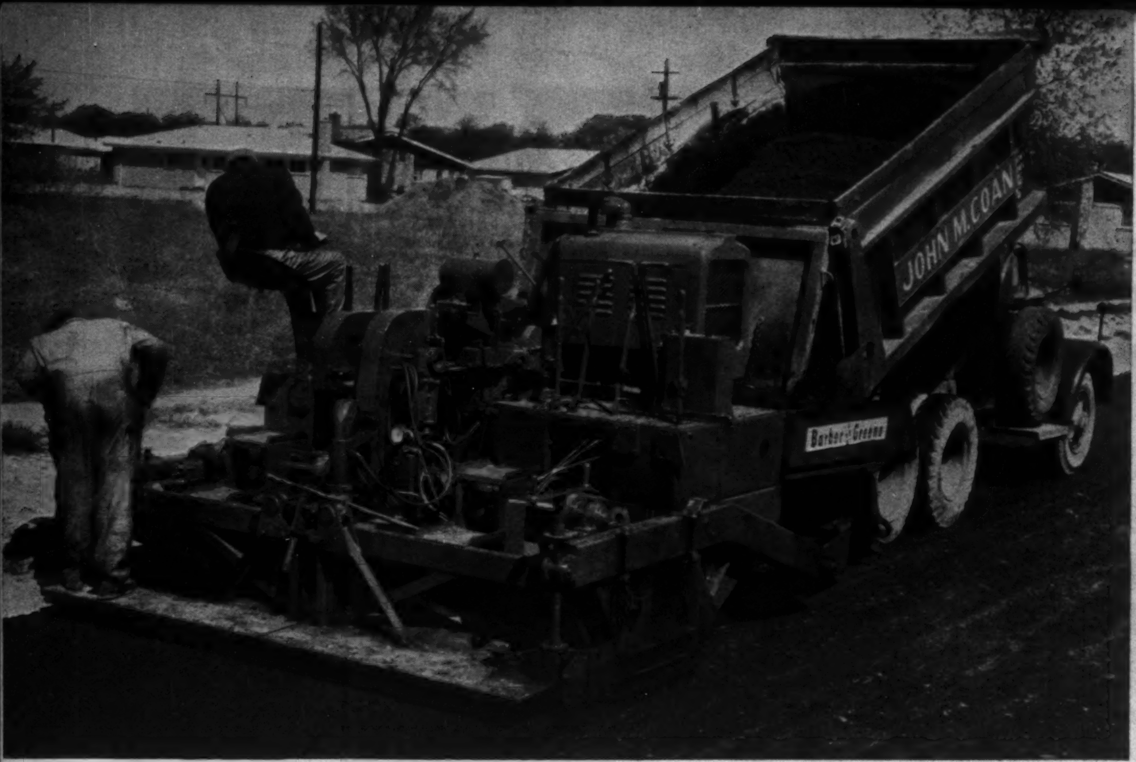

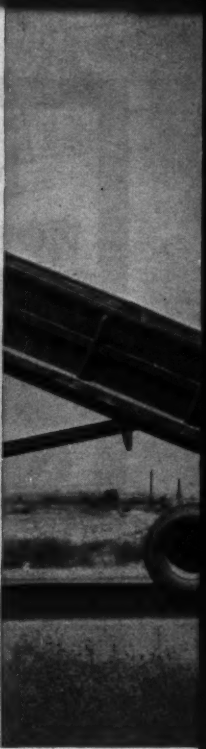

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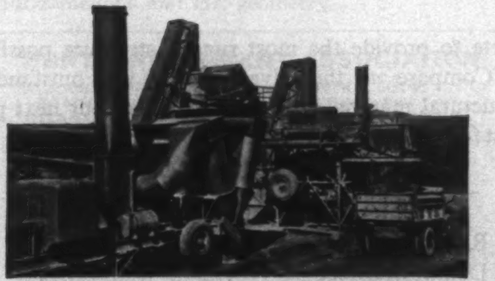

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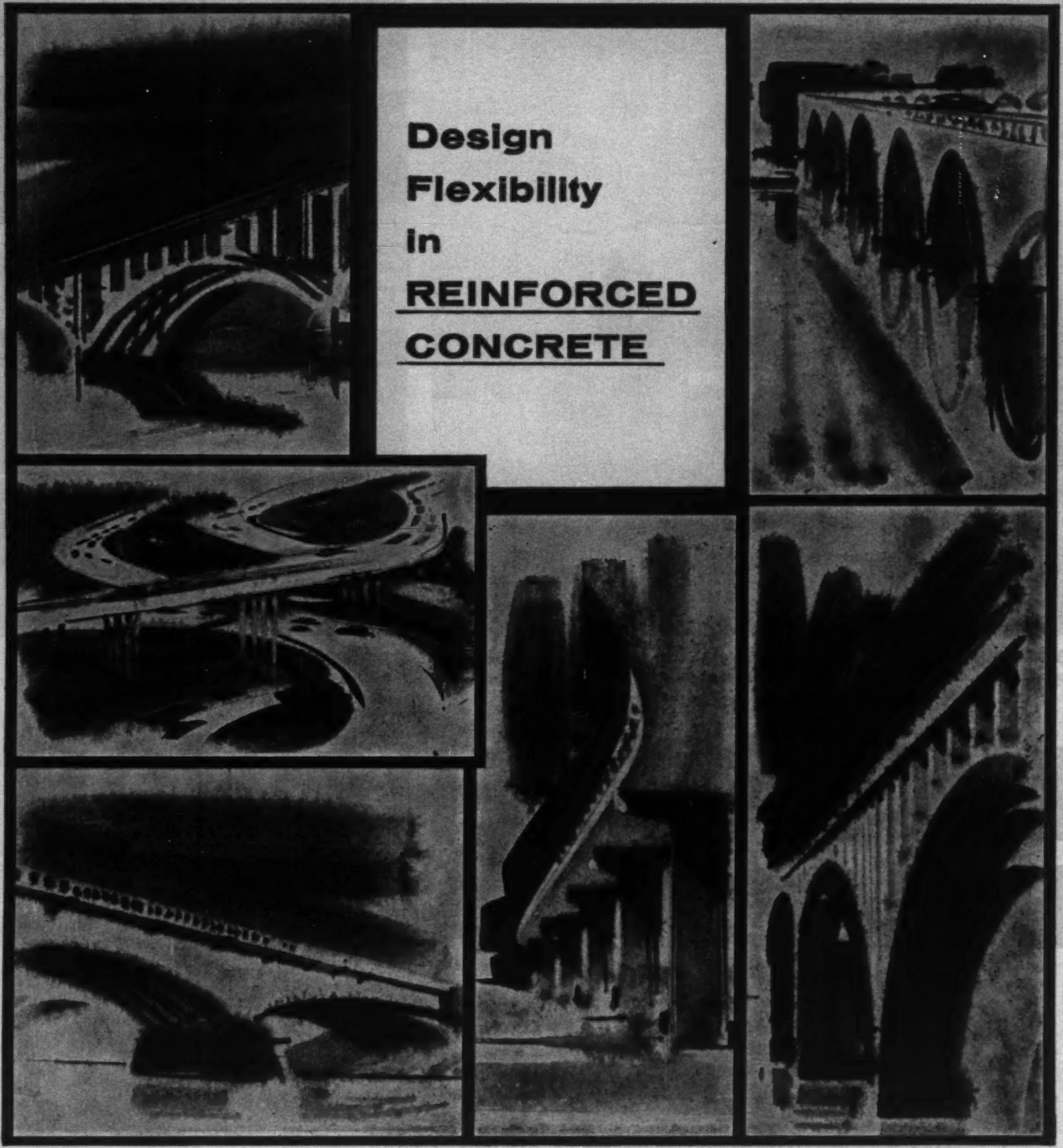

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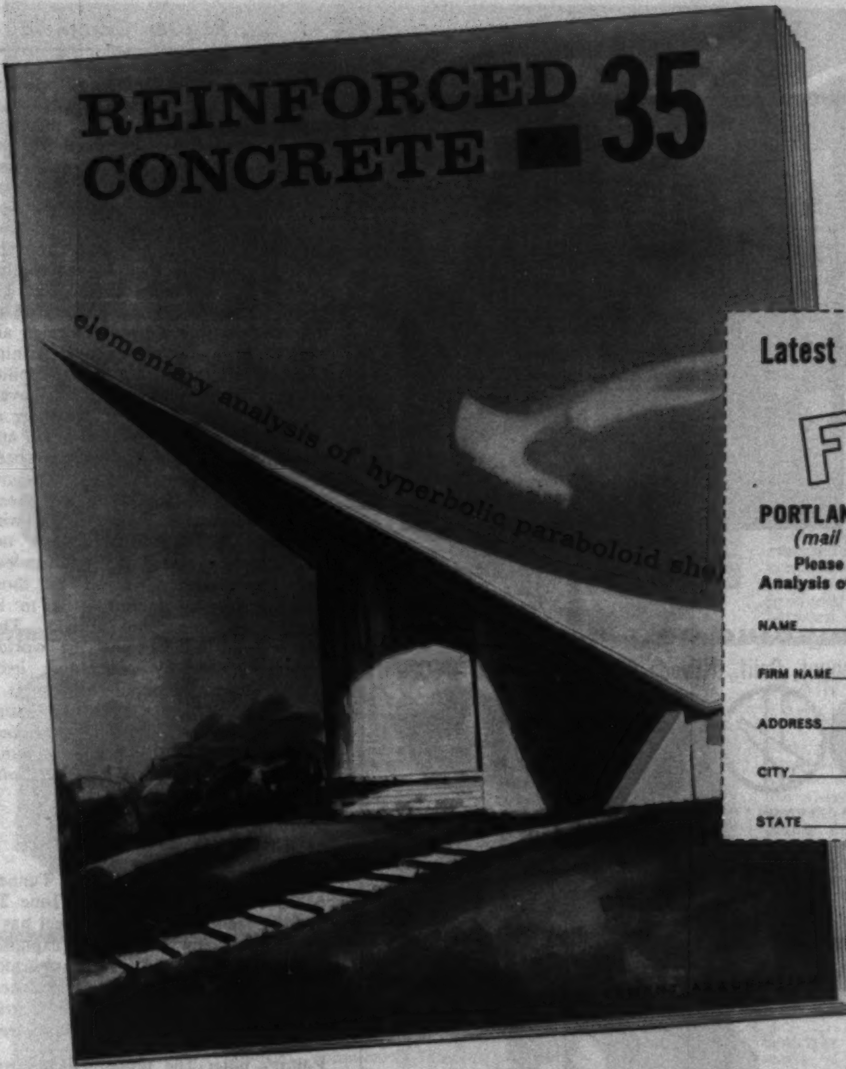

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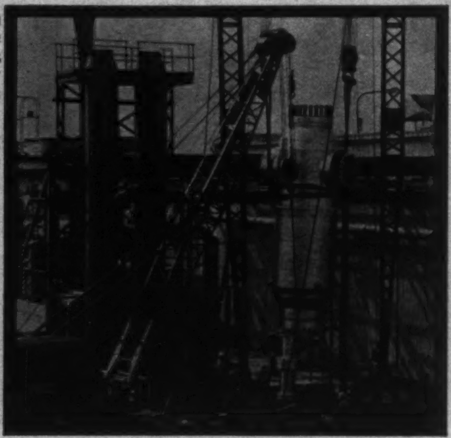

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Bihar, are a prime example of how the Soviets take full propaganda advantage of every foreign project that they undertake. It may also be noted that the Russians had nearly seven times more of their own technicians on their job than Kaiser had from the United States.

In almost all instances, the number of Americans that are allowed to be brought in is governed by the foreign government to whom our foreign aid officials kow-tow. I am well aware of the problems faced by our foreign aid experts in endeavoring to determine not only the value but the feasibility of requests for project financing overseas, but I still maintain that many of the ills of our foreign aid program and foreign relations policy could have been and could still be averted if our government officials would concern themselves more with realism than with political idealism. Principles do not change but their application can indeed be distorted when viewed by those whose principal interest it is to be popular at home and abroad. This country did not become the world's greatest power by concerning itself with a world-wide popularity contest.

GEORGE E. FISHER
Secretary
Overseas Craftsman's Association
Los Angeles, Calif.

Deceptive Diameter

SIR—The article "Dusseldorf Tunnel: A Rhine River First" (ENR June 23, p. 110) mentions that the tunnel has a 12-ft 56-in. diameter. Please explain.

C. T. KIRKPATRICK
Structural Engineer
Albuquerque District
Corps of Engineers

Editor's note: The typographical error should have been straightened out to read: The first tunnel under the Rhine River presently leads to nowhere . . . The 12-ft 6-in. dia tunnel, driven under air, will help to reduce pollution of the Rhine . . .

Syphons for Valdivia?

SIR—In your article (ENR July 14, p. 28) regarding the possible inundation of the city of Valdivia in Chile, due to the rising of the lake caused by blocks in the river which flows through the city (ENR July 14, p. 28), I am wondering if the engineers have given any thought to the possible use of syphons. Either large rubber tubing or steel pipe could be placed in each of the three blocks, in sufficient number to balance the inflow.

Another way might be to cut channels through the blocks by means of drag lines and scrapers, which would eliminate the danger of workmen being trapped by sudden landslides.

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ENGINEERING NEWS-RECORD

Vol. 165, No. 8 August 25, 1960

Number of copies printed in this issue 86,235

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Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

BANKRUPTCY RECORD—Contractor failures during the first seven months totaled 1,486, highest seven-month period since Dun & Bradstreet started the series in 1934. Although the monthly tally dipped in the last four months from 241 in March to 192 in July, it was a seasonal slide, not a real decline. In July failures were 40% above a year ago while the cumulative increase over 1959 was 25%.

BRIDGE BEAM COLLAPSES—A 35-ton precast concrete beam on the Champlain Bridge, under construction in Montreal, collapsed last week when the hydraulic jack supporting it blew a gasket. One construction worker was killed and two others injured. The bridge, which spans the St. Lawrence River, is designed in prestressed concrete.

BRIGHT SPOT—General Electric will put on the market in October an electroluminescent light panel five times brighter than any other now commercially available. It consumes 0.1 watt.

NO MORE BIDDING—Buyers of photogrammetrists' services will no longer be able to get competitive bids if a new policy sticks. The Association of Professional Photogrammetrists hopes a broad educational campaign will make possible a quick changeover to negotiated contracts for its members. APP's move follows recent efforts of the American Society of Civil Engineers to gain professional status for certain surveying and mapping activities.

LANDSLIDES WRECK SPANISH DAM—Collapse of a small dam in northern Spain near the Bay of Biscay coast last week was blamed on landslides that dumped mud and sand into the reservoir, raising the water level. At least 20 persons were killed in the village of Reocin, a mile from the town of Torrelavega. Both dam and village are owned by a Belgian mining firm, Compagnie Royal Asturienne des Mines.

A-POWER FOR NEW ENGLAND—Yankee Atomic Electric Co.'s reactor went critical last week. The 136,000-kw pressurized water reactor now begins a period of low-power tests to be followed by a step-by-step buildup to full power. The owner is a jointly owned enterprise of 10 New England utilities. Work on the $51-million plant began in the spring of 1958.

KENTUCKY'S LOSS, KENNEDY'S GAIN—Earle C. Clements has resigned as Kentucky Commissioner of Highways to work in national Democratic campaign headquarters in Washington. The U. S. Civil Service Commission is reportedly investigating the possibility that Mr. Clements violated the Hatch Act by attending the Democratic convention in Los Angeles as a delegate.

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WASHINGTON OBSERVER

- **On base building:**
  - **Bidding, yes; negotiation, no**
  - **Davis-Bacon decisions, one at a time**
- **More highway fireworks coming**

● **The Pentagon has decided to stick to formal advertised bidding on ICBM base construction contracts.** Assistant Secretary of Defense Floyd S. Bryant, in charge of properties and installations, has ruled against the Air Force's proposal that construction contracts be negotiated the way missile development and production awards are (ENR Aug. 4, p. 26).

But the Defense Department accepts another key Air Force proposal: to restrict competition for ICBM base construction awards to "selected" companies. The idea is to clamp strict "prequalification" requirements on bidders. Technical experience, capital resources, and previous military projects of the construction firms will be strictly evaluated before a contractor will be allowed to bid on a new missile job.

There's a legal squabble under way in the Pentagon on the question. The Corp of Engineers, which will continue to handle construction contracting, feels it needs clearer legal authority to handle the prequalification screening. The Defense Department's general counsel says there's enough authority now on the books.

The Defense Department's director of construction, Edward J. Sheridan, has put together into one document the construction industry proposals to overhaul ICBM base policy (ENR Aug. 18, p. 21). This has been sent to the Air Force and Corps of Engineers for comment. The services' reaction is due back in Mr. Sheridan's office by Aug. 29. Then recommendations on what if any policy changes are necessary to speed ICBM base construction will be passed up to Secretary of Defense Gates.

—

● **Secretary of Labor Mitchell is readying a new policy on determining what missile site work is covered by the Davis-Bacon law.** The issue of what is construction work had produced jurisdictional strikes and delays. Look for only the broadest statement to be issued and for Col. Clarence Barker, Mr. Mitchell's adviser on the problem, to get the job of handing down on-the-spot decisions on a case-by-case basis. No attempt is being made to lay down in Washington rules that would provide such answers ahead of time.

—

● **Rep. John Blatnik's highway investigating committee is readying another round of hearings for after election day**—one for as early as next week. The timetable calls for the next session's fireworks in "late November and early December." The committee hints it has uncovered at least a couple of cases like the Skelly bypass scandal in Oklahoma, which hearings put on the record earlier this year.

Hearings are expected to involve projects in perhaps three or four states. Investigators have been working in both the Southwest and the Northeast—New Mexico and Massachusetts are mentioned. (For answers to recent criticism of the Interstate program, see p. 24.)

The committee wants to have its work fresh in the minds of the incoming Congress, which must approve its request for a continuation and approve the funds it needs to finance its staff of investigators and lawyers.

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ENR Learns –

State highway departments are telling the Bureau of Public Roads what it will cost to finish the Interstate net. So far, it's good news: Cost of the system hasn't changed significantly since 1957. Chances are good Congress will hear in January that the . . .

Road Program's Price Holds Firm

Total cost of building the Interstate system in 36 states is about 2% under the estimate submitted to Congress in January, 1958, according to unofficial reports of revised estimates submitted to the Bureau of Public Roads.

Remaining states are expected to give BPR their new figures in the next two weeks.

The 1958 estimate (based on 1957 costs) fixed the total cost of building a 38,548-mile system at $39.5 billion, including state matching funds. Authorized mileage now totals 41,000 miles.

State reports will go into the revised estimate to be submitted to Congress next January and they will be used as a basis for apportionment of federal funds for future years (fiscal 1963-65). BPR is reviewing the individual state estimates, eliminating possible discrepancies and making adjustments before reporting to Congress. At least two state estimates have been returned for changes.

Bureau of Public Roads is not expected to release complete, official figures until the final report is ready.

Unofficially, highway officials believe that—mile for mile—the final figure will vary little from the 1958 figure. That estimate was done carefully, requiring a million man-hours to produce. Some of the larger states have not yet reported, but their figures are not expected to change the picture substantially. Earlier this month, when reports from 19 states were in, the estimate was 3.2% above 1958. Then it went to 2% below, as of last week.

Lower construction costs are expected to offset some increases in costs of right-of-way since 1957. Sharp competition has kept highway bid prices low (ENR June 23, p. 57). The Composite Mile Index for federal-aid highway construction was at an all-time high in 1957—237.5. The index was substantially lower in 1958 and 1959 and nose-dived to 223.3 in the first quarter of 1960.

Two states have released their new estimates. One of them—Virginia—spelled out details of an estimate that is about 20% lower than 1958's figure, for a greater mileage.

The Virginia Department of Highways estimated the cost of building 1,053 miles of the Interstate system at $1.246 billion, or $316 million less than the 1958 estimate, which was made by consulting engineers on the basis of a 1,000-mile system. Included in the new estimate is $118,578,000 of work on which planning or construction is now in progress.

Department engineers attributed the estimated cost reduction to several factors.

- Before the expanded program began, contracts let by the department tended to be relatively short in length of time required and smaller in quantity than now. Consequently, contractors had to bid higher unit prices in order to operate profitably. Award of larger contracts resulted in lower unit prices during the period from July 1, 1958 to June 30, 1959, upon which engineers based the new estimate.
- Advantageous design and construction experience has been gained by department personnel since the program began four years ago.
- The department has tightened up design standards at the request of the federal agency.
- It was possible to eliminate some work previously included. (No details were given by the highway department, but one such factor might be a reduction in the number of interchanges permitted under tightened federal rules.)

Officials of one state (New Jersey), whose estimate is complete but not yet sent to BPR, say their costs will be below the $1.4 billion estimated in 1958. Reasons for the decrease include advancement of planned projects to more definite design stages, design refinements, and lower bid prices.

Texas' new estimate is not yet finished. That state's mileage has been increased by 143 miles since 1957, when cost was estimated at $1.754 billion. "Based upon the old mileage covered by the 1957 estimate, it now appears that our new estimate will compare most favorably with the 1957 figure," says DeWitt C. Greer, State Highway Engineer.

Highway officials are quietly elated over the new cost estimates, since they seem to bear out the position that the 1957 estimate was sound and that little change would occur this time. Charges from various quarters have claimed that the estimate made three years ago was too low, and that total costs would zoom upward in the new estimate. For answers to this and other charges that have been made against the highway program see p. 24.

Still up in the air is the question of reimbursement to the states of the cost of construction of certain previously completed toll and free roads incorporated in the Interstate system. Estimates of this cost have ranged as high as $5 billion. No legislation has yet been enacted to reimburse the states for these highways.

The 1958 estimate included $400 million for reimbursement of the cost of relocating utilities under existing state laws. This cost may be higher under the new estimate, but has not been revealed.

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(*Turn the page*)

State highway departments are alert to any possible irregularities in dealings, and current procedures are believed to provide adequate protection.

Hiring of engineering consultants to design roads and bridges is unnecessary, improper and wasteful.

A number of state highway departments employ consulting engineers to design and supervise construction of major highway and bridge projects. Federal regulations permit this practice.

Use of consultants is based upon two logical premises: (1) it permits the state to utilize the skills of experienced specialists who would not otherwise be available and (2) it absorbs peak work loads that cannot be handled by the regular highway department staff.

Consulting fees are reasonable for the work. The National Society of Professional Engineers reports that a total of $72,131,748 was paid to consultants for designing 325 highway projects where total construction costs will be more than $2 billion, an average fee of about 3.5%.

As highway departments strengthen their staffs, the dollar volume of work done by consultants steadily diminishes. This year highway departments plan to spend about $44 million for consulting services (ENR Apr. 21, p. 36), a drop of 31% from last year.

A major foul-up has resulted in inadequate vertical clearances for defense weapons, including missiles, on Interstate routes already completed.

Because of rapid developments in the missile program, the Defense Department's vertical clearance requirements (16 ft) were not stabilized until early this year (ENR Feb. 4, p. 23). The previous standard was 14 ft.

New overhead structures are being built to provide 16-ft clearance, and many structures under construction at the time have been modified. No decision has been made on providing the additional clearance for existing structures.

Because of the availability of alternate routes, roughly half the existing structures may not have to be modified. BPR estimates that rebuilding of all existing structures authorized between July 1, 1956 and January 27, 1960 (date of approval of 16 ft) would cost $176 million.

The program is expensive and extravagant; a glorified "pork barrel" with vague benefits.

Benefits of the Interstate system are both large and real; they far outweigh the cost of the program. Here are principal measurable benefits:

- Incidence of fatalities in traffic accidents on existing limited access highways was 2.8 per 100 million vehicle miles in 1958; comparable figure for all rural roads was 7.4.

This same experience projected to 1970 shows that 30,500 lives can be saved by completion of the Interstate System on schedule; after completion, lives would be saved at the rate of about 6,000 per year.

- Savings in money and time on freeways are enormous. Studies have shown that costs of operation on controlled access urban freeways are as much as four cents per vehicle mile less than on urban streets. A trip of 15 miles thus yields the motorist a direct saving of 60 cents in operating costs to say nothing of time. In rural areas savings approach one cent per mile. Total direct savings for the entire system have been estimated at $2 billion per year.
- Freeways, in general terms, result in an increase in value of adjacent land and stimulate business activity in the area through which they pass. Although land is removed from local tax roles, net effect often is an increase in tax revenues after a few years.
- Contrary to general belief, communities bypassed by a limited access highway generally experience increased business activity, rather than economic hardship.

Around the World . . .

- **For short hops**—Passengers at the Los Angeles International Airport may go aloft before they get into a plane. The Department of Airports has recommended a system of individual cars suspended from overheads rails to carry passengers from place to place within the 265-acre terminal.

- **Double duty**—If the federal government approves a $3-million grant reportedly under negotiation, Boston Common garage will double as a fallout shelter. Construction on the huge underground structure, whose first stage was delayed by 14 years of litigation, may go into second stage construction 10 years ahead of schedule.

- **Floating A-power**—Army Engineers and the Atomic Energy Commission are developing a floating nuclear power plant that could supply emergency power to towns cut off from normal service in disasters. A "mothballed" Liberty ship will be used for the project.

- **Pipe this**—Pacific Gas & Electric Co. will call for bids soon on a 300-mile, 36-in. pipeline running from the Oregon-California border to Antioch, near San Francisco (ENR Apr. 21, p. 21). The project is part of a 1,400-mile, $400-million international natural gas pipeline from Alberta, Canada, to and through the Pacific Northwest.

- **Phew!**—A state-imposed ban on open burning of debris by demolition contractors within six miles of the City of Portland, Ore., has stopped work on that city's $9-million South Auditorium urban renewal project.

- **Better up than out**—Temporary buildings at the 1964 New York World's Fair will be permitted to rise 80 ft to furnish adequate exhibit space. Inquiries from potential U. S. exhibitors already indicate a space shortage if the buildings are limited to the customary one or two stories for international exhibitions. Each exhibitor gets only 50,000 sq ft.

- **Moscow talks on Aswan**—A high-level delegation from the United Arab Republic is reported in Moscow to conclude agreement with the Soviet Union on second-stage Aswan Dam construction. First-stage construction, including cofferdams and diversion works, is already under way with Soviet aid. The second stage includes the main dam.

- **Desalting plant bids invited**—Bids will be opened in Washington on October 18 for construction of the Point Loma, Calif., seawater conversion plant being built by the Office of Saline Water. Fluor Corp., Los Angeles, performed the architect-engineering services.

- **Rule on hot wastes**—The Atomic Energy Commission has issued proposed design and packing criteria for containers used in disposing of low-level radioactive wastes at sea. Under the rule, containers would have to maintain their integrity against ocean-bottom pressures corresponding to a depth of at least 6,000 ft.

Zoning Code Closer

Revisions spur chances for New York City code

Extensive revisions made in New York City's proposed new zoning law increase chances for passage this year. The proposals ran into a storm of criticism from real estate interests when they were made public late last year (ENR Dec. 17, 1959, p. 45).

Revisions include elimination of the previously proposed requirement that industries in residential areas move out in 25 years; incentives for builders to provide arcades and plazas; allowances for larger buildings in central commercial districts.

If adopted, the code will provide more orderly land development through a system of zoning districts, ease congestion of buildings and traffic, and coordinate industrial growth.

The code would encourage more slim buildings like Lever House, which covers 50% of its lot, and the new Chase Manhattan Bank Building, built on 27% of its lot.

Building bulk would be controlled by a "floor-area ratio" (FAR). FAR is the total floor area divided by the lot area. In built up commercial sections, for example, FAR would be 15. This means that 1,500 ft of floor space may be provided for every 100 sq ft of the lot. For high density residential areas, the new ratio is 13.

The new code contains a bonus system to encourage plazas and arcades. For every square foot of plaza a builder provides in a high density area, for example, the code gives him an added bonus of 10 sq ft of building. However, the bonus cannot exceed 20% of FAR.

The proposed law would be the first comprehensive overhaul of zoning since the city's original code of 1916, which has been amended 2,500 times.

Voorhees, Walker, Smith, Smith & Haines, New York City architects, drew up the zoning bill for the New York City Planning Commission.

Builder Buys Air Rights Over Road for $1 Million

New York City has sold the air rights over a depressed roadway leading to the George Washington Bridge for $1 million. Marvin Kratter, the buyer, plans to build apartments for 3,000 families 90 ft above the roadway.

The middle-income apartment towers will be built on a platform spanning the two-block area, says Mr. Kratter. A similar method will be used in a proposed apartment development over the New York Central Railroad yard in the Bronx, N.Y. (ENR July 7, p. 23).

High Living in Los Angeles

A 26-story apartment building now under construction in Los Angeles will be the highest residential building in the West.

The project, Barrington Plaza, also will include two 17-story apartment buildings, a two-story commercial center and a two-level underground garage. It will provide 712 apartments. The building facades will be composed of continuous glass windows at each level and bronze anodized aluminum spandrels. Cost is $20 million.

Daniel, Mann, Johnson and Mendenhall of Los Angeles are the designers. Johnson, Drake and Piper, Inc., and M. J. Brock and sons, Inc. of Downey, Calif. are building Barrington Plaza.

Rapid Transit for N.Y. Suburbs?

Col. S. H. Bingham, consulting engineer and former head of the New York City Transit Authority, has proposed a $210-million high-speed commuter system for the New York Metropolitan area. Electric trains traveling at speeds up to 80 mph would utilize existing railroad trackage to serve commuter belts in New York, New Jersey and Connecticut.

The proposal is designed to provide relief for hard-pressed commuter railroads, caught in a repetitive cycle of increased operating costs, fare increases and decline in number of riders.

Colonel Bingham's plan calls for conversion of three major routes to rapid transit operations to and from downtown Manhattan. One would serve northern New Jersey, extending to Bound Brook. Another would go through central Westchester County, as far as Pleasantville, N. Y. The third would pass through Westchester and along the Connecticut shore.

An additional $107 million would be required to extend the service through a new tunnel under the East River to northern Long Island.

The program would involve construction of connections and rehabilitation or construction of additional stations and acquisition of modern, lightweight rolling stock. Sharp curves that now restrict train speed would be eased. Major operation would be the installation of a third-rail electrical distribution system and a modern central traffic control signal system.

To implement the program, Colonel Bingham recommends creation of a tri-state agency with power to negotiate with the railroads and to build and operate the system.

U.S. Waterways Need $8 Billion

- **Half the 20,000-mile system requires improvement of channels, locks and terminals.**
- **Another 3,000 miles could be added to help shoulder expected 100% increase in freight.**

A $7.9-billion 20-to-40-year program of needed improvements and possible additions to U.S. navigable inland waterways is outlined in an Army Engineers report just released by Senator Robert S. Kerr (D. Okla.).

The expenditure would cover costs of improving some 10,000 miles of previously improved waterways and about 3,070 miles of new ones. The Great Lakes are excluded from the study.

The Corps of Engineers made the study at the request of the Senate Select Committee on National Water Resources. The committee, headed by Senator Kerr, is nearing the end of a two-year study of U.S. water resources needs through 1980.

The study encompassed the country's entire commercial inland waterway system, excluding the Great Lakes. The waterways total 20,153 miles in length. The federal government improved and now operates and maintains about 94% of the total.

The Corps based the projected waterway needs on the expectation that all existing transportation systems will soon be taxed to the limit and present U.S. freight volume in ton-miles will double by 1980 and quadruple by the turn of the century. Railways, pipelines and trucks, as well as waterways, will shoulder the added freight burden, the Corps points out.

Needs of the existing waterways system include deepening, widening and better maintenance of channels and more efficient terminals, the investigators reported.

Some commercially important waterways are too shallow or narrow to accommodate modern tow boats and barges and, therefore, operate at lower than average efficiency. Many locks are too short to pass the big tows made possible by newer equipment. Consequently, the tows have to be broken.

Maintenance deficiencies are just a matter of money, the Corps says. With presently available funds, some channels can't be maintained at their authorized depths. And associated works have been allowed to deteriorate to such a degree that considerable rehabilitation is necessary before ordinary maintenance will suffice to keep them in good operating condition. After rehabilitation, the report points out, bigger maintenance appropriations will be needed to prevent a recurrence of the deterioration.

The principal improvement needed in terminal efficiency is in transferring freight from water to rail carriers and vice versa, the Corps says. Under the law, however, terminals must be provided by private interests.

To bring the entire 10,000 miles of existing waterways deemed needful of improvement up to modern standards would cost about $4.4 billion, the Corps estimates. Of this amount, $1.7 billion (1957 prices) has been previously authorized.

New waterways totaling 3,070 miles in length could be added for about $3.5 billion, the report states. Included are 1,354 miles already authorized by Congress, to cost $800 million.

Major proposed new waterway projects that have attracted more than ordinary public interest and support include:

- A connection between the Ohio River and Lake Erie.
- Canalization of the Trinity River upstream to Dallas, Tex.
- A canalized waterway from the Arkansas River Waterway (now under construction) to the vicinity of Oklahoma City.
- Further canalization of the Columbia River.
- Canalization of the Big Sandy River into the coal fields of eastern Kentucky and western West Virginia.
- Canalization of the Kaskaskia and Big Muddy rivers to serve southern Illinois coal fields.

Decisions on how much, where and when waterway capacity should be increased ought to be determined as new facilities are needed, the report advises. All the improvements and expansions considered in the study could be built within 20 years, the Corps says, but expresses doubt that such rapid progress will be required.

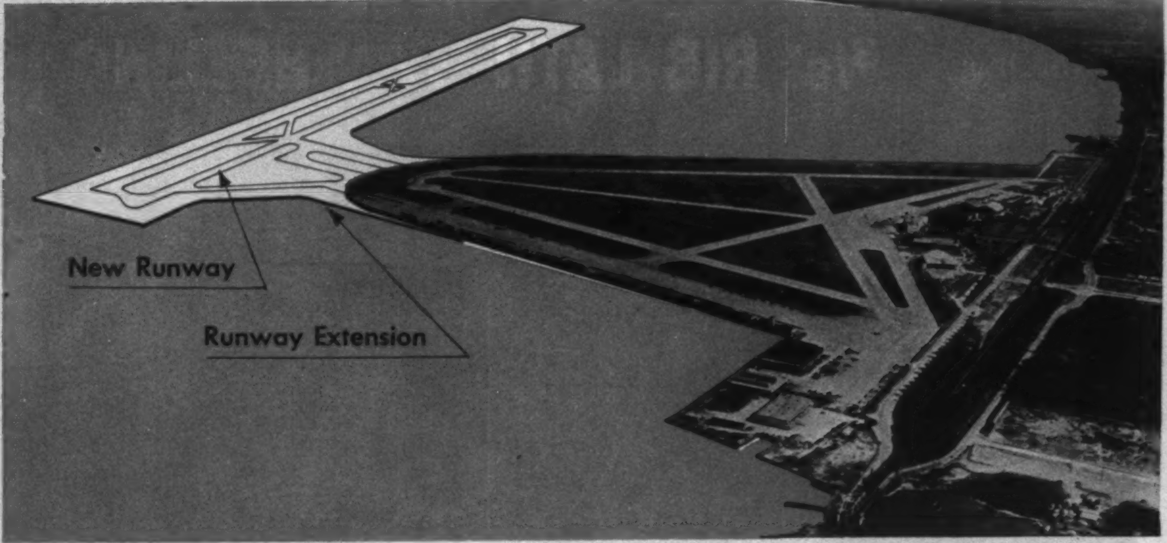
Apart from improvements and additions, the report suggested that the government drop some 3,200 miles of unused federal waterways. They are pointed to by opponents of waterway transportation to discredit the whole system, declares the Corps.

Existing waterways needing improvements

Region	Authorized		Not Authorized		Totals	
	Length Mi.	Cost $Millions	Length Mi.	Cost $Millions	Length Mi.	Cost $Millions
Atlantic Coast	480	236.6	1,636	552.7	2,116	789.3
Gulf Coast	774	94.7	1,857	289.2	2,631	383.9
Mississippi Basin	1,728	1,216.3	3,115	1,722.2	4,843	2,938.5
Pacific Coast	263	153.6	188	110.0	451	263.6
TOTAL	**3,245**	**1,701.2**	**6,796**	**2,674.1**	**10,041**	**4,375.3**

New waterways that could be developed

Region	Authorized		Not Authorized		Totals	
	Length Mi.	Cost $Millions	Length Mi.	Cost $Millions	Length Mi.	Cost $Millions
Atlantic Coast	206	184	90	15	296	199
Gulf Coast	702	352	639	483	1,341	835
Mississippi Basin	174	252	916	2,141	1,090	2,393
Pacific Coast	272	56	71	50	343	106
TOTAL	**1,354**	**844**	**1,716**	**2,689**	**3,070**	**3,533**



Lake Fill Will Double Size of Airport

The New Orleans Levee Board has launched a $9.8-million federal-aid project that will double the size of New Orleans Airport on Lake Pontchartrain.

Land for the project will be reclaimed from the lake, as was the site of the present delta-shaped airport in 1933.

The airport will gain a new 6,000-ft east-west runway, a 1,500-ft extension to the existing north-south runway, and three new taxiways.

Bauer Dredging Co., Inc., Port Lavaca, Tex., has begun work under a $1.8-million contract on the first phase of construction—driving 50 ft of creosoted piling to support the retaining wall for fill to form the base of the north-south runway extension. Bolted at the top of the piling will be 8x12-in. waling. Twelve-inch Wakefield sheetpiling will form the bulkhead. A total of 4,500 lin ft of bulkhead will be placed to contain 1.7 million cu yd of fill for the runway extension.

Work toward reclaiming land for the new east-west runway will begin when the current extension project is completed in January, 1961.

When the entire project is completed the airport will have two active runways, the extended and improved north-south runway and the new east-west runway. Three other existing runways will be phased out and converted to taxiways, creating more hangar and ramp space.

Long-range plans call for the construction of a heliport and seadrome at the airport, which is classified by the Federal Aeronautics Agency as a "trunk type" facility.

It served commercial air traffic from 1933 to 1946, when Moisant International Airport was completed 12 miles west of New Orleans. Then scheduled airlines operations were switched to Moisant and New Orleans Airport has since been used for general, non-scheduled aircraft operations.

'Fizzlevilles in Scattertown' means . . .

You Can't Build Houses Just Anywhere

"Fizzlevilles" in "Scattertown" counties cropping up all over the country are a blot on the healthy landscape.

So said Morton S. Hilbert, public health official from Eloise, Mich., speaking before the annual congress of the American Public Works Association in New York City last week.

"Certain areas are not suitable for development," he said, "and cannot be used for housing and at the same time provide full protection to the health of the people." Such land should remain as farm, swamp, or whatever the existing natural conditions may indicate, he declared. "There is a widespread misconception that the owner of a farm has a certain inalienable right granted to him by the Constitution of the United States to become a subdivider if he so desires," he said. "Such a belief," declared Mr. Hilbert, "needs careful scrutiny in the light of the need for the protection of the general welfare, the public health and the community's best interest."

"Efforts must be made by public health engineers to halt such development," he said. He further stated that large lots are not the solution to the problem of private sewerage facilities. Unless sewers are installed when an area is developed, the wide lots make financing difficult and sewers costly at a later date.

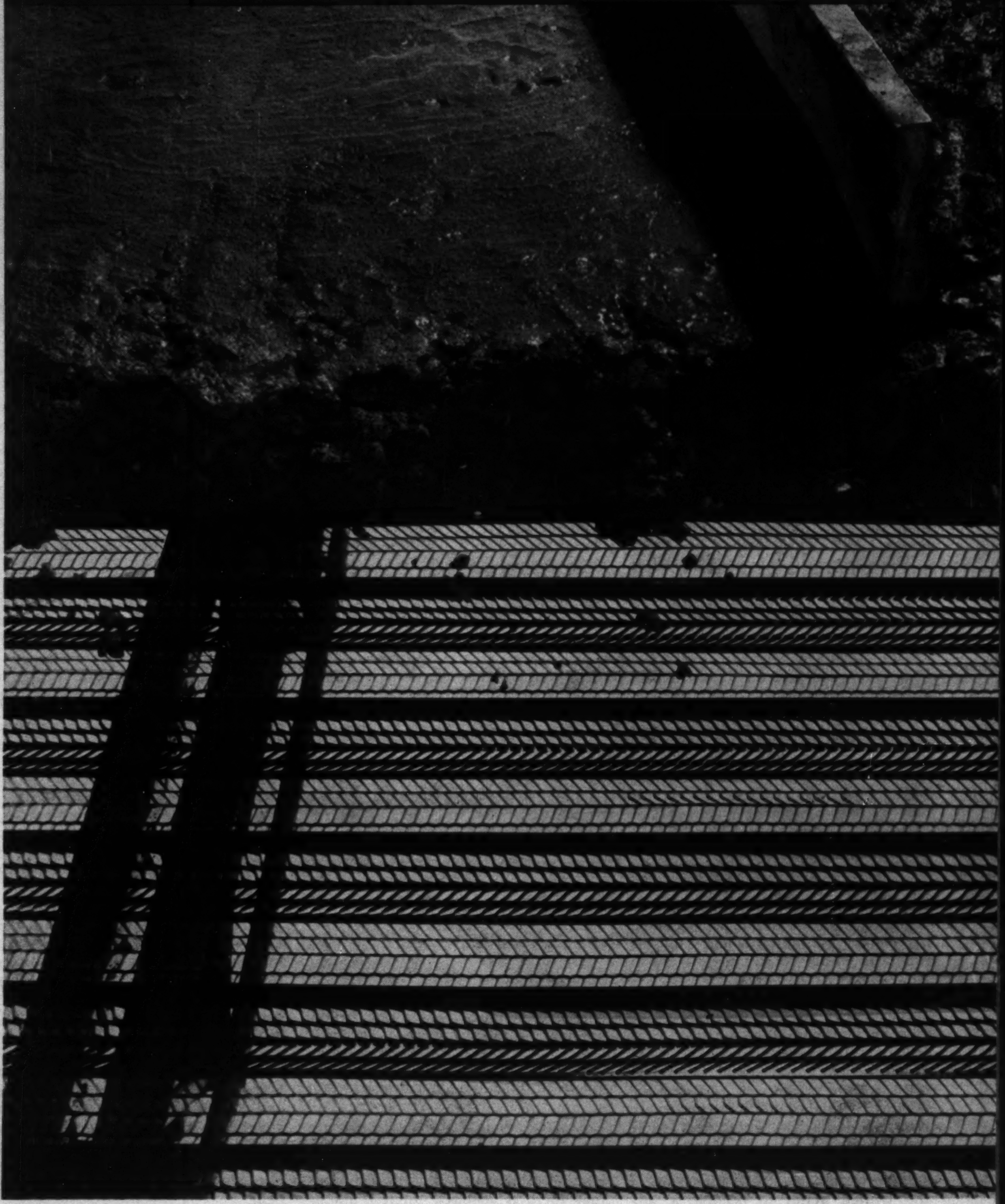
Leaving public health and welfare for the practical consideration of public works officials, John Kenneth Galbraith, Harvard economist, told the conferees that there is renewed interest among Americans in spending construction dollars on buildings that have beauty and elegance.

Professor Galbraith cited designs of new embassies in New Delhi and Brussels as evidence of this trend. He commented that he was not making a case for pointless extras, but acknowledged the fact that the services required to bring "beauty and elegance" to public buildings were likely to increase construction costs.

About 3,000 public works and sanitation officials attended the congress and equipment show at the New York Coliseum. Over 35 papers were delivered and more than 100 companies exhibited equipment, materials, and supplies that are used in the public works field.

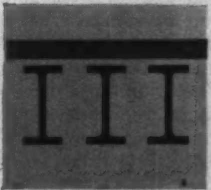
Wheeling

3/8" RIB LATH BY WHEELING

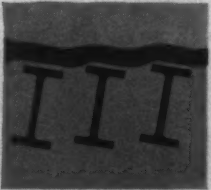


Now! Strong, economical concrete floors and roofs for any building!

It's easier than ever to install concrete floors and roofs — thanks to Wheeling's *new, improved* 3/8" Rib Lath! Especially designed for surfaces of less than 5,000 square feet, this low-cost material actually does *two jobs for the price of one!* Just look!



Rigid Wheeling 3/8" Rib Lath transfers loads to joist along strong vertical axis only.

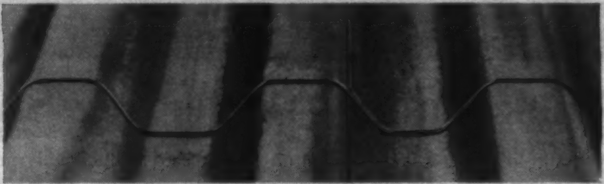


Wheeling's 3/8" Rib Lath doesn't allow load to be transferred along weak horizontal axis . . . thus causing "dominoing."

EFFICIENT, PERMANENT CONCRETE FORM! Wheeling Rib Lath has sturdy, closely spaced ribs. This assures the strength and rigidity needed to eliminate the dangerous side pull associated with more flexible forms. There's no costly welding, because Wheeling Rib Lath can be clipped or tied. And Wheeling Rib Lath's so strong it usually eliminates shoring completely . . . becomes an integral part of the slab, so there's never any form to remove.

PROVEN CONCRETE REINFORCEMENT! Unlike smooth, solid forms, Wheeling 3/8" Rib Lath has hundreds of tiny openings that grip concrete to form a composite slab. What's more, Wheeling Rib Lath reinforces the *bottom* of the slab . . . adds strength where tension stresses are greatest.

See your Wheeling man this week for the complete facts on new, improved Wheeling 3/8" Rib Lath for concrete floors and roofs. Wheeling Corrugating Company, Wheeling, W. Va.



For larger surfaces or unusually heavy loads, use new Wheeling Tensilform®!

WHEELING CORRUGATING COMPANY · IT'S WHEELING STEEL!

Immediate delivery on all stocked items from these warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond* and *St. Louis.* Also Sales Offices in: *Atlanta, Houston.*

Space Truss Roof for Idlewild

I. M. Pei, submitting a space-truss roof design, has been chosen winner of an architectural competition sponsored by the Port of New York Authority to select an architect for a multi-airline terminal building at New York International Airport.

The winning design, which may be changed when final plans are drawn, is a rectangular structure, 600 ft long and 200 ft deep. It has no columns in the interior. Along the outside glass walls, however, there are reinforced concrete columns. These are spaced 104 ft apart on the long side and 60 ft apart on the short side. The building is bound on all four sides by two-story glass walls. The facade above the glass is aluminum.

The main feature of the flat roof is the two-way diagonal truss framing. The bottom chords are made of steel cables, and the common top chord, which is also the roof deck, is a concrete slab about 5 in. thick. The web members are tetrahedrons made of steel pipe.

The ceiling is composed of perforated 6x8-ft aluminum panels, backed up with acoustical insulation. The lighting equipment is housed behind the perforations in these panels.

Mr. Pei's design was unanimously chosen as the best in relation to its neighboring buildings and the over-all plan of the New York International Airport.

Ammann and Whitney of New York City were the consulting engineers for the roof design.

Truck Tunnel to Service Stores

A 900-ft-long, 30-ft-wide truck tunnel will make it easy for trucks to supply the $40-million Del Amo shopping center under construction in Torrance, Calif.

All shipping and loading facilities for the shops will be underground so trucks will not jam street traffic and rubbish can be kept out of sight.

The tunnel's structural members also serve as support for a mall above. The L-shaped tunnel will run beneath the mall a distance of 400 ft, then turn and extend under the shops. Entrance to the tunnel will be directly from streets bordering the center.

Welton Becket and Associates, Los Angeles, are the architects for all but one of the structures at the center. Oltmans Construction Co., Monterey Park, Calif. is general contractor.

Cost of the tunnel was $283,000.

Sewer Jobs Increase

But treatment plant work is down 30%

Construction awards for new sewers went up 25% above 1959 in the first six months of 1960, while new treatment plant awards unexplainably dropped 30%, according to figures compiled by the U. S. Public Health Service.

Dollar volume of awards for new sewer construction rose to $196.8 million in the six months to July 1, up $36 million from the comparable figure a year ago. Treatment plant contracts, however, declined to $145.6 million, down $60.8 million below last year.

Over-all, the combined value of contract awards for both categories is less than $15 million under last year's total of $367.2 million in the first six months. This differential could be canceled out by a pickup in second-half awards. Over the years, however, PHS has found first-half activity to be a good indicator of the twelve-month trend.

Continued decline in treatment plant construction by the largest cities is the chief factor in the downward movement. A clue to this decline is the drop-off in sewage treatment contracts with a value of more than $1 million. In the first six months of 1959, PHS recorded more than $84 million of treatment plant contracts of this size. During the comparable period this year, such contracts totaled not quite $36 million.

Construction of sewage treatment works by cities of over 100,000 population has fallen off greatly in recent years, PHS records show. In 1955 and 1956, these large cities awarded treatment plant contracts worth $201 million and $196 million. By last year, the volume had dropped to $105 million and the annual rate for this year so far is only $58 million.

In 1956, cities of less than 100,000 population awarded only 40% of the contract total, but in the first six months of 1960 their awards accounted for 77% of the treatment works volume.

The contrast between large and small cities may be attributed in part to the $250,000 limitation on federal grants in the Pollution Control Act of 1956. This sum is not much of a spur to a multimillion-dollar project, but it can give a boost to a job for a smaller city.

Another possible explanation for the swift 1960 drop in treatment plant contracts lies in the political sector. In this election year, politicians may figure that money spent promptly on streets, roads, parking areas and similar facilities will win more votes than a construction start on a treatment plant which won't produce tangible benefits until some time in the future.

SPAN-POWER

Neither traffic, nor flood stop the "span-power" that MVSS generates to expedite a job. 11 bridges in 5 months is a record just set. At this very moment 6 MVSS plants are completing fabrication for 5 more bridges simultaneously.

26 rivers, highways and railroads spanned . . . in 17 months . . .

***MVSS HAS IT**—1100 men and their manpower . . . six completely equipped fabricating plants . . . three erection companies . . . add up to MVSS *span-power*.

This bridge which spans the wide Missouri at Mobridge, South Dakota, is the largest bridge between the Mississippi River and the West Coast and includes these MVSS all-welded plate girder spans.

Superstructure Contractor:
John F. Beasley
Construction Co.

Completely shop assembled bridges, too.—For this State of Illinois bridge (considerably skewed and on a 3.54% grade) MVSS fabricated 717 tons; three spans were shop-assembled and reamed while assembled. CTA bridge crosses over Congress Expressway, Chicago.

MISSISSIPPI VALLEY

STRUCTURAL MVSS STEEL COMPANY
SERVICE

Six Strategic Plants. Chicago (Melrose Park) • St. Louis, Mo. • Flint, Michigan
Lansing, Michigan • Decatur, Ill. • Chattanooga, Tenn.

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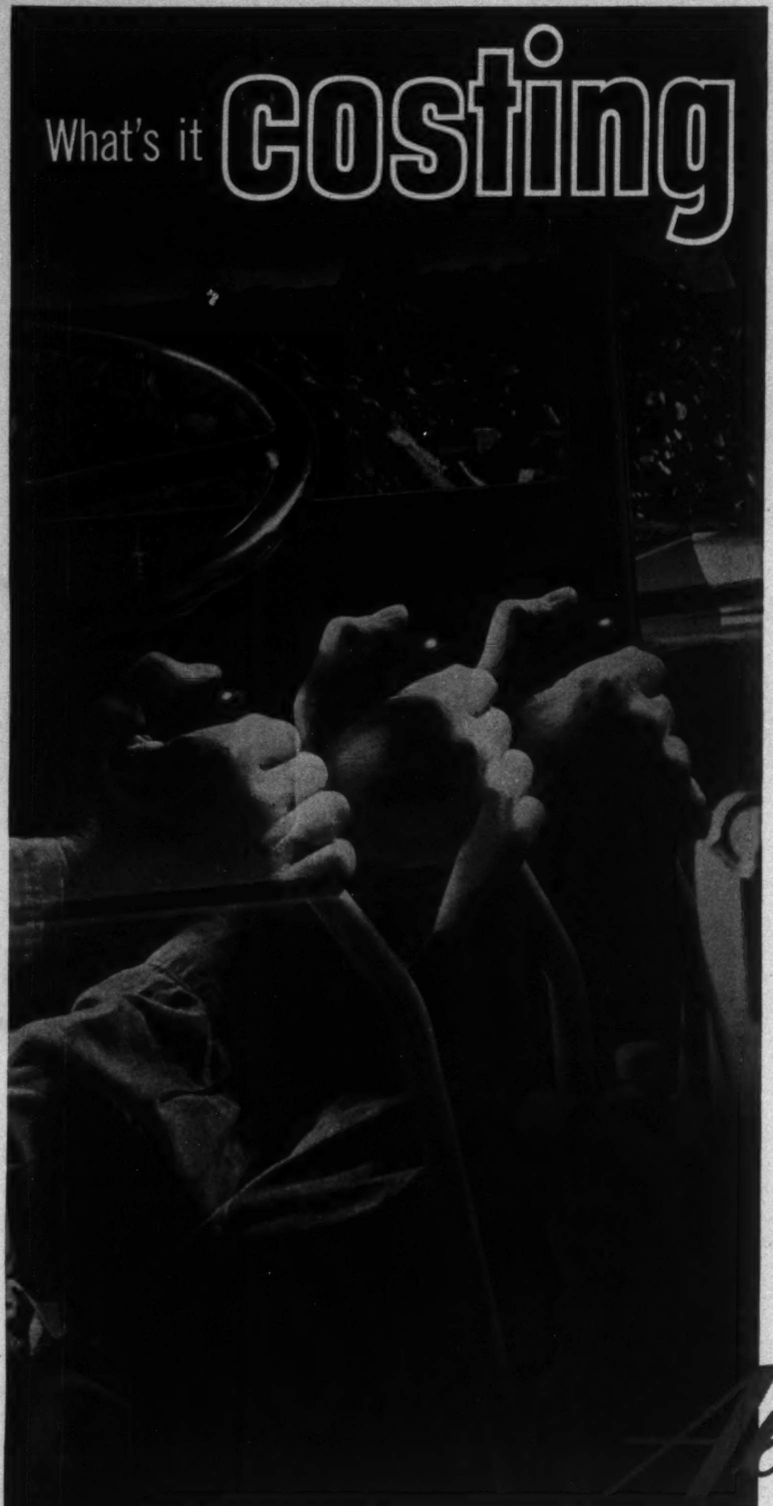

What's it **costing you** to slow down and shift?

It could well be costing you important time because of slower job cycles. This time is money you'd be saving with TORQMATIC DRIVES in your equipment—and the proof is on TORQMATIC owners' books.

For these owners have their operators quick-shift at *full throttle*—never any power interruption. No more pumping of clutches and timing of shifts. What's more, they don't need a booster tractor to get moving in goo or gob. And these owners free their engines from the shock loads and strains which clashboxes cause. Ending equipment damage saves them about $1,500 to $2,000 every time they train a rookie driver. Another $800 or more goes into the bank each year because they've wiped out engine-disconnect clutch costs.

The reason? TORQMATIC is controlled by a single, small shift lever. There's no leg-tiring disconnect clutch. TORQMATIC *automatically* adjusts engine power output and speed to load or terrain changes, absorbing harmful and expensive shock loads. It provides a steady, increasing torque to the wheels for a smooth standing start.

The men who are making the extra money—who are underbidding you on your contracts—are probably the men who have switched to TORQMATIC. They *know* they'll more than make up the initial extra cost of TORQMATIC in savings alone. You could, too. So see your equipment dealer or write Allison.

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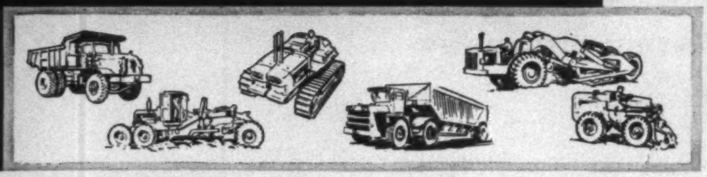
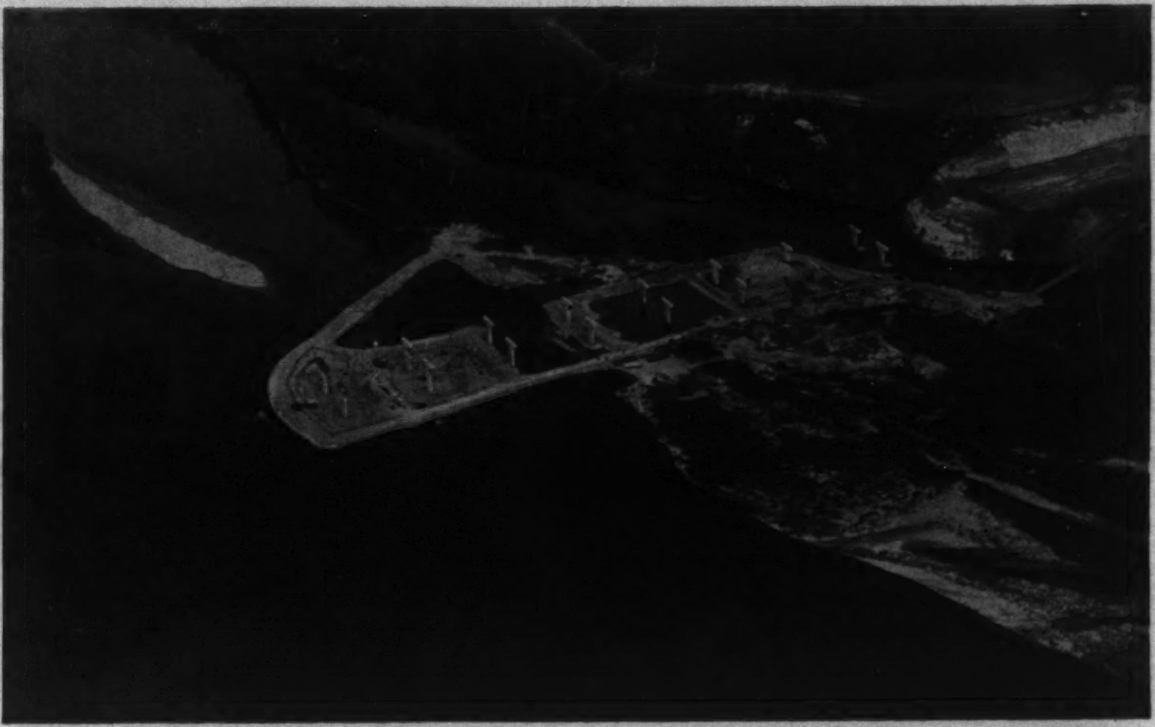
TORQMATIC® DRIVES

THE MODERN DRIVE FOR MODERN EQUIPMENT





Instead of cofferdams to build bridge piers in the dry . . .

Earth Dikes Protect Pier Sites

Contractors on the twin bridges that will carry Interstate highways 90 and 94 over the Wisconsin River, near Portage, Wis., chose a system of earth dikes rather than cofferdams to protect their substructure construction. The plan was successful despite the fact that the job was flooded out three times.

Although the flood crests reached only about 7 ft above normal river level, they were the highest in over 20 years. They were totally unpredictable.

The 1,680-ft-long bridges are made up of twelve 140-ft spans, arranged in four groups of three continuous spans each. The bridges are spaced 60 ft apart c-c and carry 30-ft roadways with 3-ft curbs.

An existing sand island near the east river bank made the job almost ideal for using dikes. Those protecting the first eight pairs of piers on the east side of the river were made from material taken from the riverbed by a dragline. Dikes protecting the other three pairs of piers were constructed of dumped-in-place material hauled in by truck and progressively bulldozed out from shore.

The contractor first built a temporary bridge from the east bank to the island. The first pair of dikes extended back from the island to the east bank. After they had been constructed in about 8 ft of water, the area was dewatered with a system of wellpoints, and the first two pairs of piers constructed in the "dry."

Use of the dike system provided plenty of working space for footing excavation, pile driving and placing concrete in the pier footings, columns and caps. Top width of 20 ft provided a haul road for construction equipment and materials including transit-mix concrete. Dikes were built to about 4 ft above river level.

The contractors used a double-stage system of wellpoints around the working area inside of the dikes. To keep the various areas dewatered required up to five 8-in. pumps. Maximum depth of the dewatered area was 20 ft below the river level.

Spiral-weld steel shell piles filled with concrete support the piers. They were driven with a diesel hammer that developed 22,600 ft-lb of energy per blow to a 40-ton maximum resistance and to an average penetration of 30 ft. The piles were capped with 4 ft of concrete, which supports the 3-ft-thick reinforced concrete footings. The columns were constructed in two lifts.

All concrete was delivered by transit mix trucks and hoisted into place by a crawler crane, using a 1-cu-yd bucket.

The second system of dikes surrounded three pairs of piers located on the sand island. Cross-dikes were also built between the piers to minimize dewatering requirements.

A third dike system enclosed the next three pairs of piers and consisted of three main dikes plus the cross-dikes. As shown in the accompanying aerial photo, the contractors first built a training dike out from a point on the island upstream from the bridge to about midpoint of the river. This was necessary to divert the current while constructing the other two main dikes, extending out from the island on each side of the working areas. The face exposed to the river current was rip-rapped.

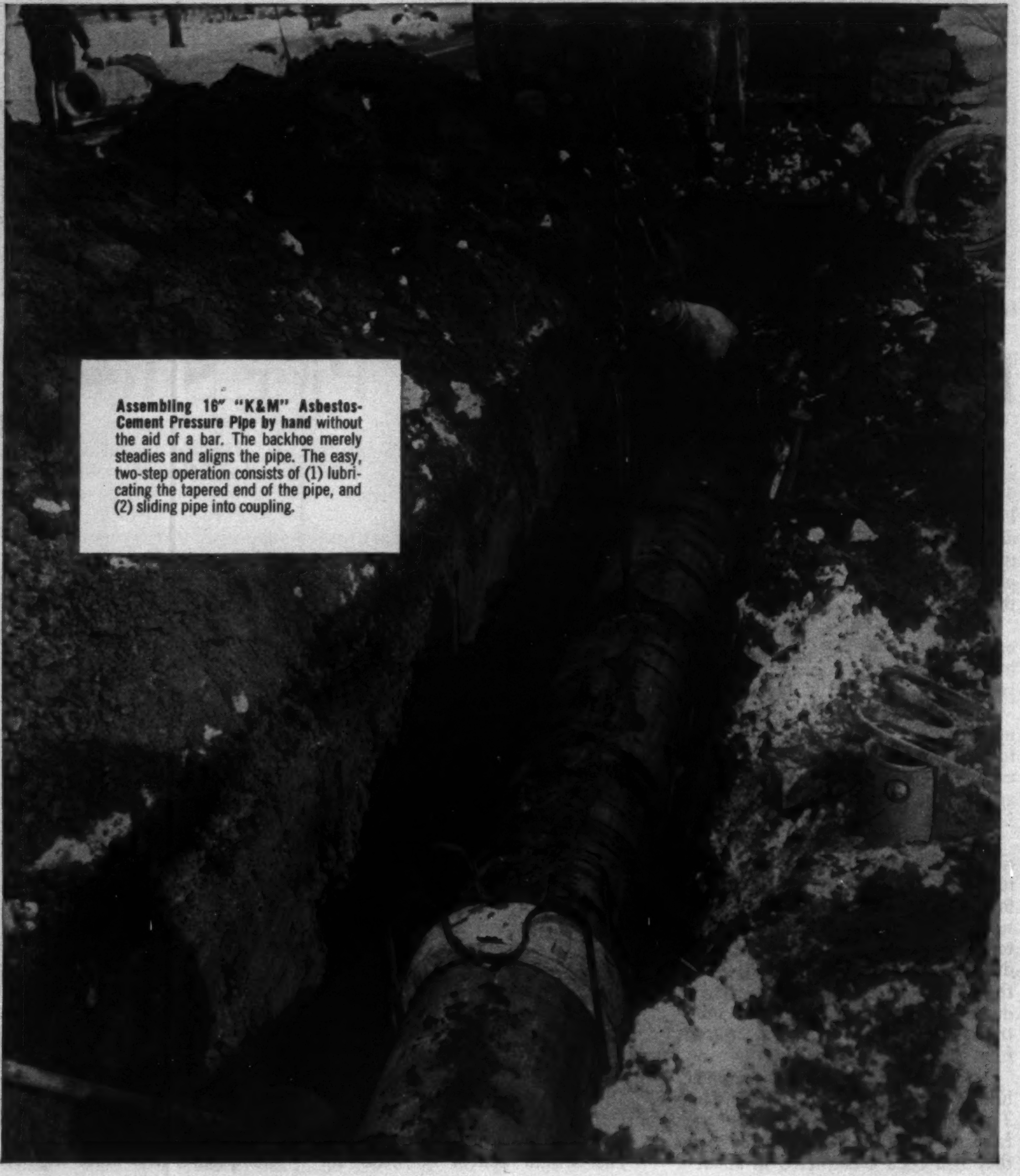
Despite flood delays and slow delivery of structural steel, the contractors expect to finish the $1.6-million project by contract completion date—Aug. 1, 1961.

David C. Wilkinson is project engineer, and LeRoy E. Gross is his assistant. E. L. Roettiger is chief engineer of the Wisconsin State Highway Department, and W. F. Steuber is his assistant. S. E. Hicks is construction engineer.

Contractors on the project are S. J. Groves & Sons Co., and Walter D. Giertsen, joint venturers. A. E. Foote is project superintendent, and Jerry Thompson is field office engineer.

"‘K&M’ ASBESTOS-CEMENT

LAYS AS FAST AS



Assembling 16" "K&M" Asbestos-Cement Pressure Pipe by hand without the aid of a bar. The backhoe merely steadies and aligns the pipe. The easy, two-step operation consists of (1) lubricating the tapered end of the pipe, and (2) sliding pipe into coupling.

PRESSURE PIPE

A SHOVEL DIGS..."

G&B Construction, Inc., Youngstown, Ohio, installs 4½ miles of "K&M" Asbestos-Cement Pressure Pipe for the Austintown District of Mahoning County, Ohio

"You can lay 'K&M' Pipe as fast as a shovel can dig. There is nothing that will hold you back with this pipe. When you can lay a 16" water line, and it goes in as easy as an 8" water line, what more could you ask? They've got a good joint with that FLUID-TITE® Coupling . . . the pipe is wonderful to put together. There is no comparison between the FLUID-TITE Coupling and other couplings. Of all the 'K&M' Pipe we've laid, we never had a coupling break. Coupling breaks are very common with other pipe."

Those are the comments of Louis Gulfo, partner with Mike and James Bertilacci in G&B Construction, Inc. They installed "K&M" Asbestos-Cement Pressure Pipe in bitter cold, during February and March 1960. However, neither rain, snow, nor mud interrupts the installation of this modern pipe. The exclusive, patented "K&M" FLUID-TITE Coupling and the simple fitting procedures required make assembly easy.

Little or no maintenance will face Mahoning County, which built and will operate the system for a year, or the City of Youngstown, Ohio, which will then take it over. Being non-metallic, "K&M" Asbestos-Cement Pressure Pipe won't rot, corrode, or tuberculate, and is immune to electrolysis. The suppliers of this pipe were Trumbull Plumbing Supply Co., Warren and Youngstown, Ohio.

Now, in addition, you may use quality "K&M" Plastic Pressure Pipe in the same system with "K&M" Asbestos-Cement Pipe, if desired.

Write today for more information on "K&M" Asbestos-Cement Pressure Pipe to: Keasbey & Mattison Company, Ambler, Penna. Dept. P-1380.

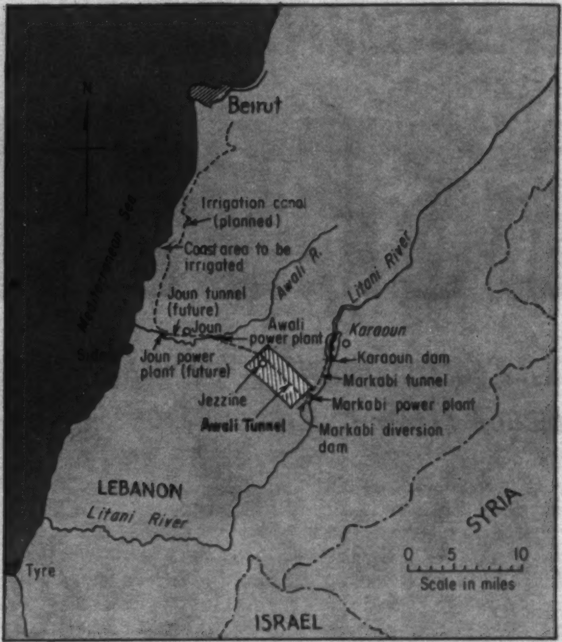
K·M
BEST IN ASBESTOS

Keasbey & Mattison at Ambler

Left to right: Louis Gulfo, G&B Construction, Inc.; Dale MacCleary, sales manager, Trumbull Plumbing Supply Co.; James Bertilacci, G&B Construction, Inc., Burke Lyden, Asst. Chief Engineer, Youngstown, Water Dept., Jim Bisciglia, Asst. Engineer, Mahoning County, and J. Henry Painter, Trumbull Supply Company.

3 miles of 16" "K&M" Asbestos-Cement Pressure Pipe were installed. Here, we see it ready for installation along Webb Road, in Austintown Township. In branching from the 16" water line, Mahoning County used 1 mile of 12" "K&M" Asbestos-Cement Pressure Pipe and ½ mile of 8" "K&M" Asbestos-Cement Pressure Pipe. Specifications call for 90 lbs. pressure when line is in operation serving 16,000 residents.

Litani River Project is in rugged terrain.



Shading shows trouble area in Awali Tunnel job.

Flowing Sand Plugs Two Miles of

Construction of a 10-mile-long tunnel in Lebanon—part of one of the Middle East's greatest hydro projects—has become a nightmare for everyone connected with it:

- Bad rock has made extensive exploratory boring, heavy bracing and quick concrete lining a must.
- Cave-ins at three headings have had work on the tunnel at a virtual standstill since last August.
- Water has poured in at rates up to 95,000 gpm and at pressures of up to 850 psi.
- And as the most visible and spectacular difficulty—perhaps uprecendented in tunneling experience—sand has flowed into the tunnel to such an extent that at one point a two-mile-long section of completed bore is almost entirely filled.

All efforts to remove the sand have been unsuccessful. Indeed, so complex are the problems of geology and geohydrology that a board of internationally renowned engineers and contractors was called in to study conditions and suggest remedial action.

The troublesome bore, called the Awali Tunnel, is in the first construction phase of the multipurpose Litani River development in southwest Lebanon. This $100-million, two-phase project, being carried out by the Litani River Authority, is very important to Lebanon because on it are pinned the country's hopes for the development of agriculture and light industry. Thus far, Lebanon, with an extremely arid soil and few natural resources, has been a nation of traders. Completion of the Litani Project can change this.

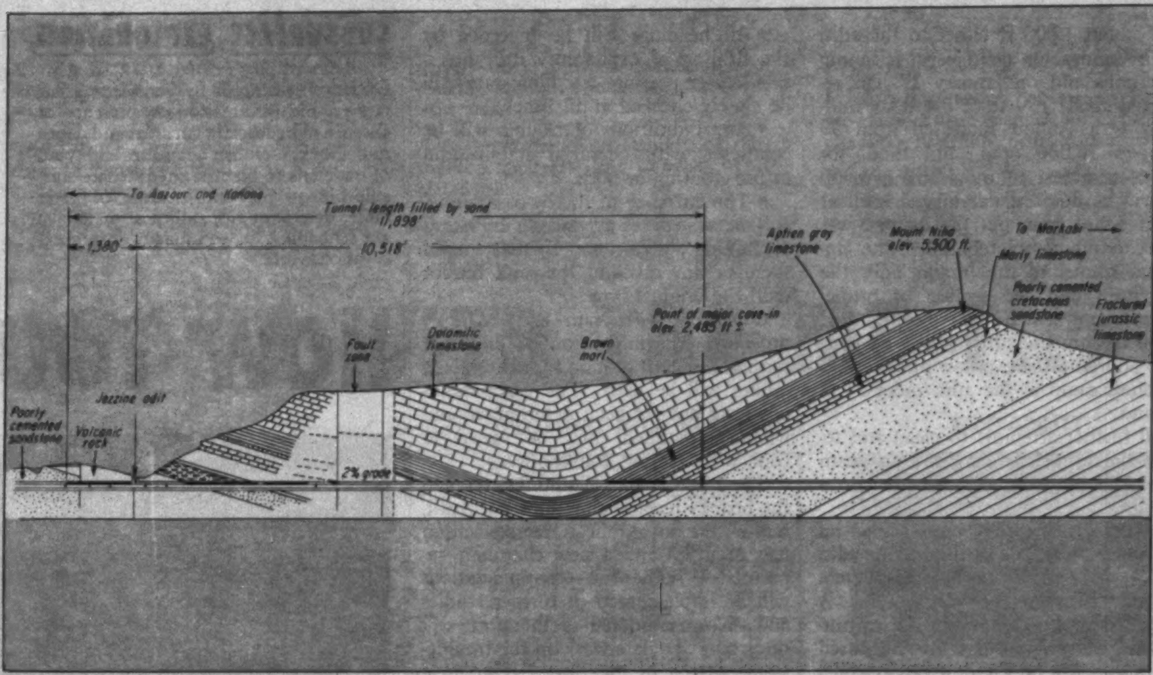
The Awali Tunnel is the real stumbling block to progress. It is to be a 9.94-mile-long horseshoe, 10 ft 8 in. in height with a capacity of 875 cfs. On its route it crossed one of the earth's great fault zones, the African-Palestinian rift, which starts at Lake Victoria in Africa and ends in Turkey. Along this fault great masses of jurassic limestone and cretaceous sandstone have been uplifted into folds ranging from almost vertical to almost horizontal. The major folds are interspersed with smaller folds of brown marl, marly limestone and Aptien Grey limestone. There are also vertical faults, strata of Dolomitic Limestone, and pockets of volcanic rock. The limestone is often cavernous and heavily water-bearing. The sandstone is loosely cemented and easily eroded by water.

The tunnel is being constructed from portals at Kanane and Markabi and adits at Aazour and Jezzine. The distance between Kanane and the Aazour adit is about 6,800 ft; between Aazour and Jezzine about 14,300 ft. Between the Jezzine adit and the Markabi portal it is 6.4 miles, but the height of Mount Niha makes additional adits impractical.

Construction is handled under two separate contracts, both awarded to a combine consisting of Impresa Astaldi of Rome, Italy and Societe Auxiliare d'Enterprises Electrique et de Travauz Publique, of Paris. The contract price for the downstream section of the tunnel from Jezzine to the portal at Kanane is $4 million; the work includes a forebay and a small rockfill dam. The price for the upstream tunnel between Jezzine and Markabi is $9 million.

Because the upstream section was expected to be the most difficult, it was started first. From the Markabi end the heading advanced through fractured and fissured limestone without incident for a distance of 3,800 ft. Then water flowed into the bore at a rate of 6,300 gpm. But since at the same time a spring on the mountainside some 750 ft above dried up, suggesting that this was the source of the water, the contractor plugged the leak in the tunnel roof and continued driving.

When the heading reached a major fault zone 4,600 ft from the portal it became necessary to support the tunnel roof with heavy shoring. At the 11,700-ft mark, in an area of badly fractured limestone, the water problem became acute and added appreciably to the contractor's already complex boring problems. The Authority then ordered the contractor to stop the tunneling of the section and to begin lining the bored part with concrete. Tunneling


To Aazour and Karoun
Tunnel length filled by sand 11,898'
1,380'
10,518'
Poorly cemented sandstone
Volcanic rock
Jezzine adit
Fault zone
Dolomitic limestone
2% grade
Brown marl
Point of major cave-in elev. 2,485 ft ±
Aptien gray limestone
Mount Niha elev. 5,500 ft.
To Markabi
Marly limestone
Poorly cemented cretaceous sandstone
Fractured jurassic limestone

Geological profile shows conditions encountered by Awali tunnelers boring from Jezzine adit.

Tunnel — And It Won't Come Out

equipment and tunnelers were sent to other work areas where their concentration is more effective. The lining of the bore is currently under way.

From the Jezzine end, boring proceeded toward Markabi in a routine fashion for more than a mile and a half. Even a serious vertical fault was bored with little difficulty. At about 9,300 ft came the first inkling of trouble. Water from a thin layer of sandstone carried about 65 cu yd of sand into the bore. At 10,400 ft a similar condition brought more sand into the tunnel. Both inflows were controlled without appreciable delay.

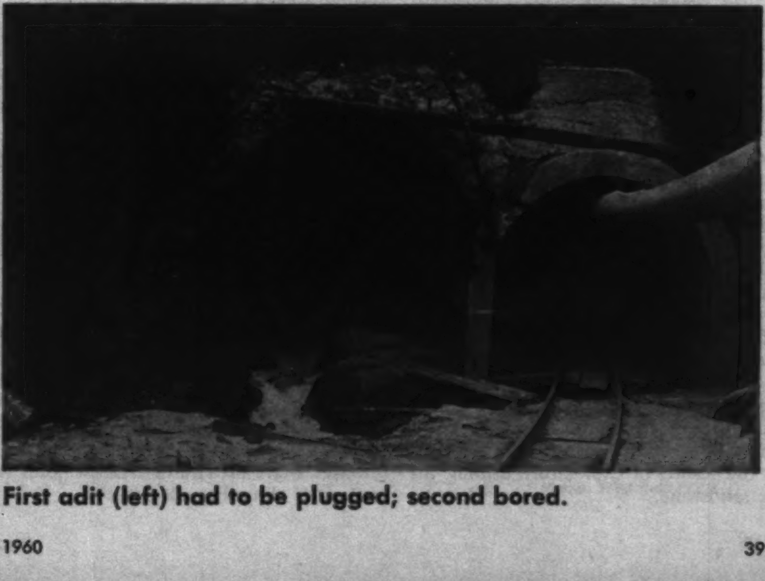
On the morning of August 3, 1959, at a point 10,518 ft from the Jezzine adit, the real trouble began. The heading moved out of limestone and into sandstone, and not only did the roof fall in, but the whole mountain seemed determined to get into the tunnel. The trouble spot was in neither the limestone nor the sandstone, but in the seam between them. Here water had collected in great quantity and under a hydrostatic pressure estimated to be in excess of 850 psi. When the bore provided an escape route for the water it rushed past the sandstone, quickly eroded it, and carried the resulting sand into the tunnel so rapidly that within four hours more than 2,600 ft of the bore was completely plugged. Twelve hours later a second inflow brought the sand back about another 2,000 ft.

No one was injured during either cave-in, but in the interests of safety, engineers ordered a temporary halt to the work. For the next two months water continued to flow at rates varying between 950 and 3,150 gpm. because of ponding and release.

In November, when the flow became stabilized at 950 gpm, the engineers and contractors decided to start cleaning operations. By this time more than 9,800 ft of the bore was plugged, and sand was within 700 ft of the adit.

On December 24, when about 2,500 ft of the plugged tunnel had been cleaned the inflow of water stopped almost completely for several hours. When it resumed, it pushed the sand another 500 ft back towards the adit.

The contractor began recleaning operations almost immediately and by January 4 had regained the ground lost in the December cave-in. Then came another inflow and within three days the sand face had started to move



First adit (left) had to be plugged; second bored.

back about 1,000 ft closer to the adit.

The contractor again began cleaning operations and on January 27 had recovered about 150 ft of the bore. Suddenly water inflow increased from 30 gpm to 30,000 gpm, and then, for several minutes, to more than 95,000 gpm. The flow then stabilized itself at about 3,000 gpm, but the damage was done. Sand completely filled the upstream tunnel to the Jezzine adit, the adit itself and the section of tunnel downstream which had been bored 1,380 ft from the adit towards Kanane.

In addition, the overflow put the construction camp at the adit under 2½ ft of sand.

All further attempts to clean and redrive the tunnel through the upstream cave-in zone were temporarily abandoned.

So that work could be continued on the downstream side of the Jezzine adit, however, a 66-ft-long plug of concrete was cast between the two sections. A new adit was cut for the upstream tunnel and the original adit is being used for exploration on the downstream side.

The water flow from the cave-in zone continues at rates varying from 1,200 to 3,500 gpm. The total sand flow from the sandstone overburden, which is estimated to be 2,600 ft thick, exceeded 100,000 cu yd and may have reached 130,000 cu yd.

In March of this year the Litani River Authority called the tunnel experts who investigated the problem at the site and recommended solutions. The investigating board was made up of J. Donovan Jacobs of San Francisco, chairman; Mansell L. MacLean, New York; Victor L. Stevens, Salt Lake City; J. B. Harding and J. Kell, both of London. If its recommendations are carried out, here's how the job will be done.

- Piping and pumps will be installed to remove sand hydraulically.
- As cleaning operations proceed, bulkheads will be erected within the bore at 1,000 ft intervals. No bulkhead will be removed until another bulkhead is completed ahead of it in the bore.
- Overflow-bypass conduits will be installed to relieve water pressure and carry any new inflow of sand and water around bulkheads and through the cleaned-out tunnel sections and back to the adit.
- The cleaning will not reach the cave-in area but will be stopped somewhere between 150 and 650 ft from it where the bore will be plugged with sufficient concrete to withstand the hydrostatic pressures of the area. A by-pass tunnel will then be bored to detour the cave-in zone, and to meet the heading from the Markabi end. The length of the by-pass will depend on the results of exploratory drilling in the sandstone.
- All headings will be preceded by the drilling of exploratory drill holes.
- Water pressure and flow rate will be closely checked at all times.
- Any indications of trouble will be countered with chemical stabilization or pre-grouting or both.
- The entrance to the by-pass tunnel will be sealed by a concrete bulkhead containing a steel door, so that should there be any cave-ins, the sand cannot refill the original bore.

One thing is certain—there will be no more blasting through sandstone formations. Soft ground tunneling techniques will be used. The exact methods have not yet been determined, and when determined, may be varied to cope with varying conditions.

The Litani Valley Authority accepted the board's recommendations last April, but in the meantime a reorganization had occurred and a new chairman appointed. Whether the recommendations will be implemented or further studies and changes ordered is therefore still uncertain. To date work on the troublesome section of the tunnel is up to a year behind schedule and remedial measures have cost about $1 million.

Work on other sections of the tunnel is practically at a stand-still. The contractor is doing extensive exploratory drilling, and where necessary he is pregrouting or using chemicals for soil stabilization. But until the difficulties with flowing sand are corrected, little can be done of tunneling.

The $45-million first phase of the Litani project is financed largely by a $27-million World Bank loan. It includes construction of a dam on the Litani River at Karanaoun in Southern Bakaa. Although the current contract is for a multiple concrete arch, possibly a rockfill type may be substituted.

Water from the 48,000-acre-ft lake impounded by the dam is to be carried southward beneath the Litani gorge through a three-mile long pressure tunnel to a 28,500-kw power plant at Markabi. From Markabi the water will then be diverted westward through the Awali Tunnel under the 5,500-ft high Niha Mountain in the rugged Lebanon mountain range, to a 60,000-kw power plant on the Awali River. It will then be used to irrigate Lebanon's arid coastal plain and to supply water needs of Beirut. It is planned, in the future, to send some of the water to a third power plant at Joun and subsequently to irrigate the southern part of the country.

The basic plan was designed by the Litani River Authority based on an earlier scheme by the U. S. Bureau of Reclamation (ENR Nov 21, 1957, p. 33). Detailed design and supervision is by LRA's consulting engineers, called Groupe Francaise du Litani, a joint venture of three French firms.

SUBSURFACE EXPLORATION

Dirtmovers: Profit by complete, accurate pre-bid information on presence or absence of bedrock in cut areas and depth to bedrock; establish quantities and types of materials to be excavated; locate suitable borrow pits and location of water table; determine rippability of materials; aid scheduling of equipment during excavation work.

HOW YOU

Paving Contractors: Profit by establishing gravel deposits, volume and type, nearest to the work site.

Consulting Engineers: Profit by predesign subsurface information for buildings, bridges and highways.

Highway Engineers: Establish presence or absence of rock for highway design work; pre-bid classification of materials, volume of materials, subsurface structures.

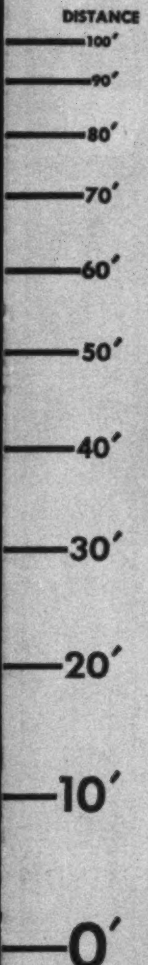
Architects: Establish stability of subsurface materials and depths for all planning.

Quarry Producers: Profit by accurate information of location and size of aggregate deposits, amount of overburden.

Mining Engineers: For example; locate pre-glacial stream channels for placer exploration, determine bedrock depths.

Bridge Builders: Economically establish stability of subsurface structure for foundations.

PROFIT WITH THE MD-1...


DISTANCE
100′
90′
80′
70′
60′
50′
40′
30′
20′
10′
0′

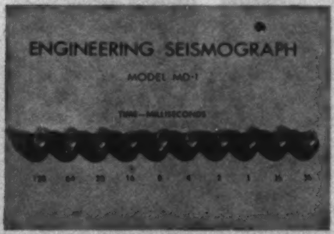
Today's profit squeeze and intense competition in the engineering and construction industry can make the MD-1 Engineering Seismograph the most important cost-saving tool you own.

Why? Because daily throughout the world, MD-1 analyses of subsurface material conditions are being quickly converted into profits in the many ways listed above. Yet this vital tool requires no specialized training to operate. It develops accurate, reliable information in the simple manner shown here:

HAMMER PLUS GEOPHONE

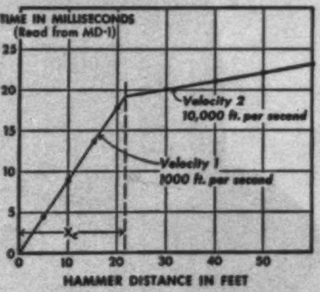
A sledge hammer is struck against a metal plate at known distances from the MD-1. As blow is struck, a switch closes on the hammer, starting the MD-1's electronic counter. The sound waves initiated by the blow are picked up by a geophone, also connected to the MD-1. The time of travel of the *first* or fastest sound wave to reach the geophone is read directly from the MD-1's electronic counter lights.

ELECTRONIC COUNTER


ENGINEERING SEISMOGRAPH
MODEL MD-1
TIME—MILLISECONDS
128 64 32 16 8 4 2 1

This travel time is determined by the depth and type of the material; the denser the material, the faster the sound waves travel.

PLOTTING MD-1 READINGS



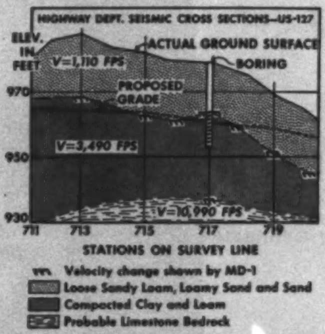
Recorded travel times are plotted on a graph. This time-distance curve represents the velocities of the materials encountered. These velocities indicate the types of materials and each break in the curve indicates a change in material.

DEPTH EQUATION

$$D = \frac{X_c}{2}\sqrt{\frac{V_2 - V_1}{V_2 + V_1}}$$

Using the above formula, the depth to denser materials or bedrock is provided. D is the depth, X_c is the hammer distance at which the velocity change occurs, V_1 is the velocity of the top material, and V_2 is the velocity of the second material. Depths to deeper layers are determined the same way.

SUBSURFACE PROFILE


HIGHWAY DEPT. SEISMIC CROSS SECTIONS—US-127
ELEV. IN FEET
ACTUAL GROUND SURFACE
BORING
V=1,110 FPS
PROPOSED GRADE
V=3,490 FPS
V=10,990 FPS
970
950
930
711
713
715
717
719
STATIONS ON SURVEY LINE
Velocity change shown by MD-1
Loose Sandy Loam, Loamy Sand and Sand
Compacted Clay and Loam
Probable Limestone Bedrock

The depths and materials are then marked on a profile map of the job so that subsurface conditions will be considered in the planning and bidding of the work.

PORTABILITY

Because of its small size and light weight, the MD-1 can easily be used in areas inaccessible to drilling rigs. Also important, boulder strewn soils do not impair accuracy of findings as sometimes occurs with probing devices. Where rippability is a factor, a table of velocities for rippable rock has been prepared by the Caterpillar Tractor Co. for use with the MD-1.

The reliability and dependability of the MD-1 is user proved over a number of years on thousands of jobs by operators all over the world.

See how you can profit on your next job with this simple to operate tool of the new age in earthmoving. Ask for a demonstration—operate it yourself after a few minutes instruction.

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15409 Robinwood Drive • Hopkins, Minn.
Phone: WEst 8-6877

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that only a giant can do . . .
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he is an engine—
a supplier and creator of power.
his jobs are many and varied,
his demands are infrequent and few.

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he can work on almost any fuel.
on assignment
he can work almost anywhere at all.

he makes the boats go . . .
towboats on the Mississippi,
harbor boats in Pakistan,
fishing fleets out of Portugal,
tuna clippers off Peru.
in wartime he drove submarines
and landing craft.
today he helps atomic vessels
do their job.

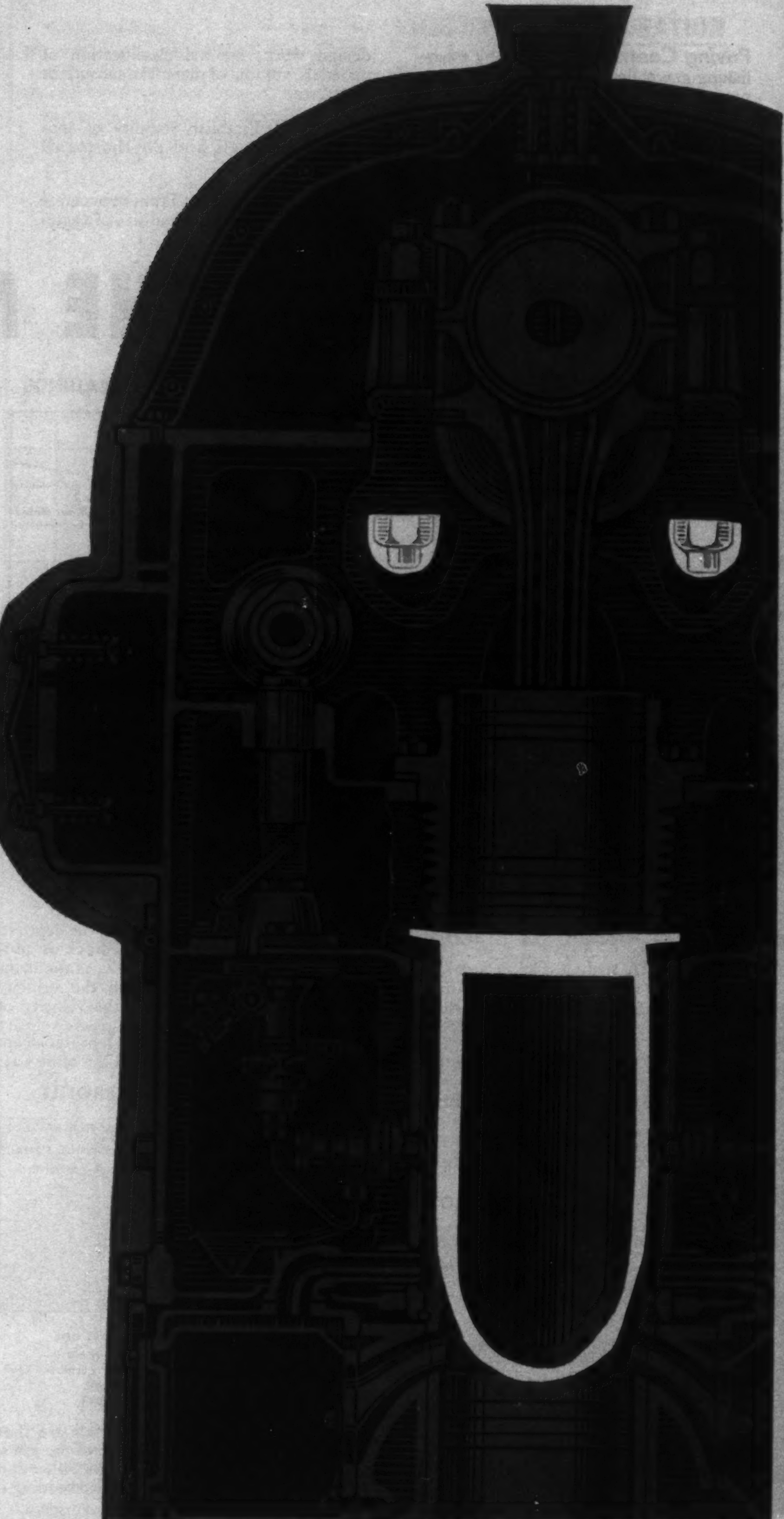
he drives . . .
cement mills in Indonesia,
dredges in Manila Bay,
oil drills in Venezuela,
rigs in the Gulf of Mexico.
he pulls buses, trucks and tractors . . .
locomotives, rock-crushers
and bulldozers.

he generates . . .
light for cities
and power for plants,
electricity for homes
and more for hospitals.
he powers
missile stations in Wyoming,
radio stations in Sudan
and emergency stations in New York.

there is no country in the free world
where he is a stranger.

there is nothing he will not tackle
and little he cannot do.

his voice is in his accomplishments
and you hear it every day.



End cross-section of the
Fairbanks-Morse Opposed-Piston
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Fairbanks, Morse

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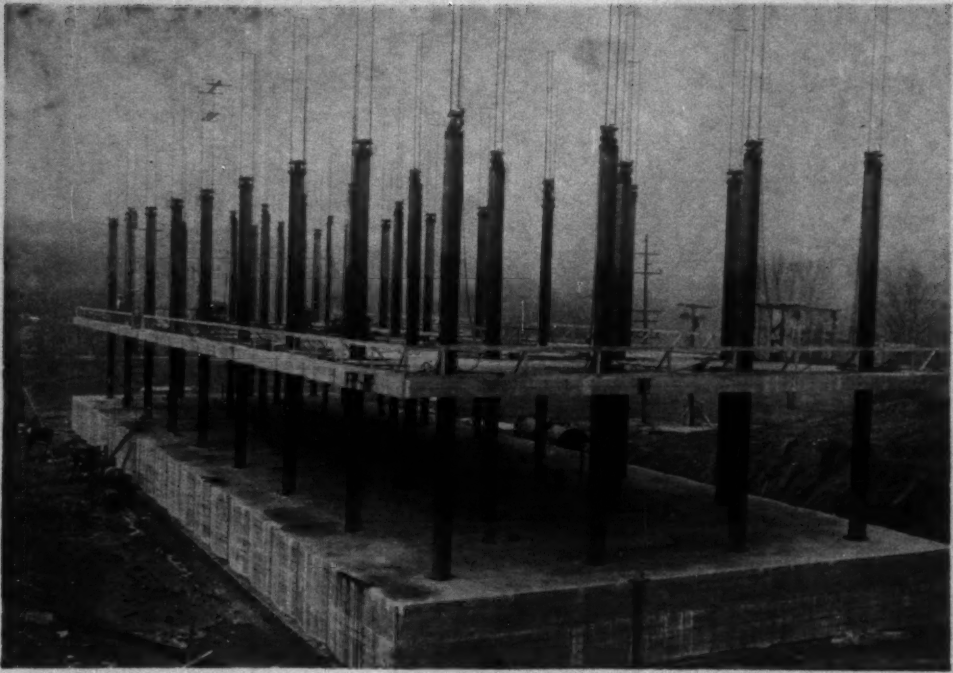


Fifteen slabs for an apartment house at Ann Arbor were cast at grade.

After slabs were

Automatic Jacks Raise Record

Building B
Building A

Lift-slab method erects twin 15-story apartment buildings.

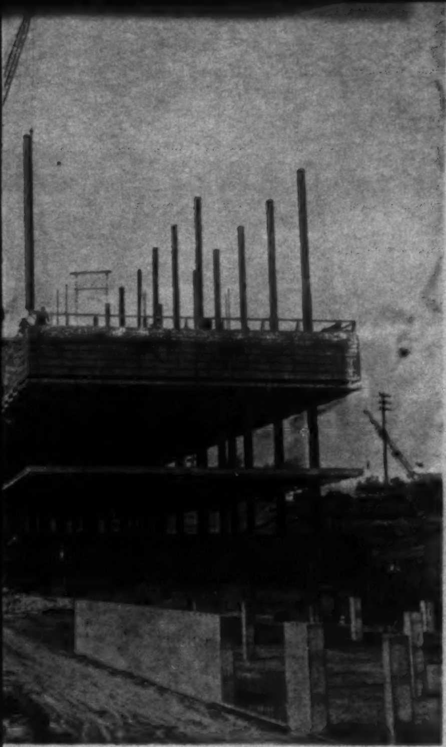
Accepted methods of lift-slab construction plus a few innovations are being successfully combined in the construction of "twin" 15-floor apartment buildings at Ann Arbor, Mich. Lifting operations at one apartment were finished July 1, while the other is scheduled for completion by Sept. 29.

The towers have 12 floors of apartments, a ground floor and two basements. Each building contains 180 apartments. Maximum height measured from the roof to the lower basement floor is 146 ft.

The project has four unusual features, says the general contractor. They are a record number of liftable slabs; near-record lifting height; unique sequence of casting the concrete; and wintertime protection.

The upper basement floor and ground floor in each building are waffle-type construction, 16½ in. deep, including a 2.5-in. floor slab. The 12 apartment floors and the roofs are flat slabs. They are all 9 in. thick, except the first living floor, which is 10 in.

The 12 apartment floors are 8 ft 9 in. floor to floor, providing a clear height of 8 ft. The ground floor has a clear height of 16 ft 8 in. Both basements in Building A have a clear height of 8 ft 9 in. This dimension is increased to 10 ft 3 in. in Building B, since it contains major service facilities for both towers.



lifted, columns were extended.

Lift-Slabs

Maximum lifting height of roof slab for Building A is 142 ft. For Building B it is 145 ft.

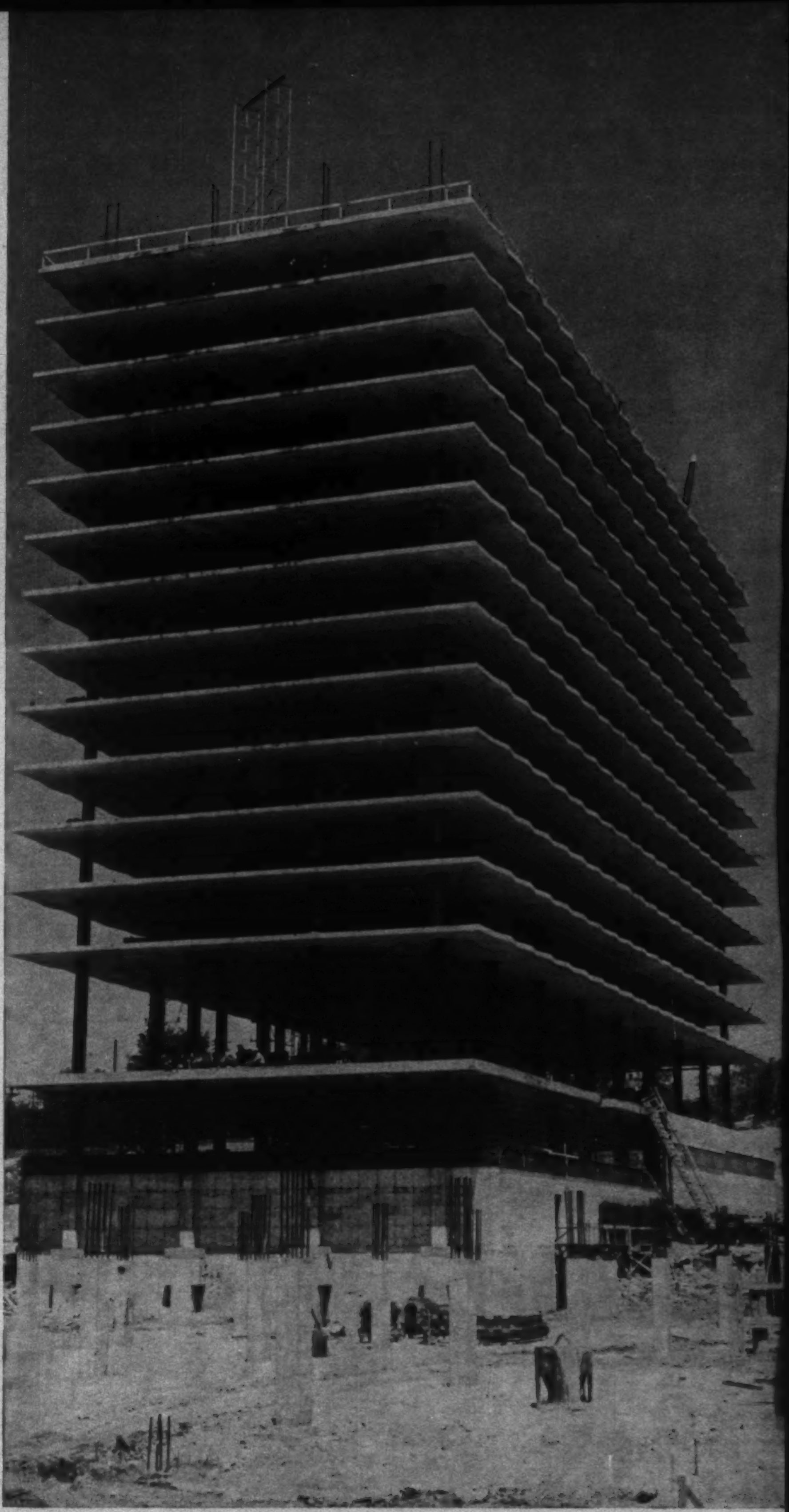
The number of liftable slabs—15 in Building A—sets a record since it is the greatest number of concrete decks to be lifted in the United States. It includes the roof slab, the 12 apartment floor slabs, the ground floor and the floor of the upper basement.

The lower basement floors in both buildings were cast directly on the ground to serve as casting beds for the liftable slabs. The upper basement floor in Building B was also cast in place, since it contains several large openings to accommodate service facilities. The other 13 floors and the roof were lifted into place.

Although the 145-ft lift is not as great as the maximum lift in a 160-ft high, 14-story apartment in Hallendale, Fla. (ENR Dec. 26, 1957, p. 24) it is a near-record lift, especially when the size and weight of slabs are considered. The 9-in. thick, 215x69-ft floor slabs weigh about 830 tons each.

Most of the floors in both towers are nearly identical. Consequently, the contractor developed a unique sequence of casting the slabs at the lower-basement floor level. One complete floor, covering nearly 15,000 sq ft and containing 410 cu yd of concrete, was cast in a three-day cycle.

(*Turn the page*)



Finally, the roof of the 215 x 69-ft building was jacked up 145 ft.

PIPE TOWER was used to raise hydraulic jacks to column tops.

As soon as one crew had completed the formwork and installed reinforcement and conduits for a floor slab in one building, it moved over to the other building to begin preparing a new slab there. At the same time, the concrete crew placed concrete for the slab in the first building, pumping it into place from a centrally located mixer. The slabs were cast on top of each other, separated by two applications of a colorless sealing compound sprayed on the concrete after it had taken initial set.

This sequence of operations was maintained throughout last winter by protecting both working areas from freezing weather.

Each building contains 36 steel columns arranged in four rows of nine each. Longitudinal spacing includes two 24½-ft end bays and six 25-ft interior bays. There are 8-ft overhangs at each end of the 215-ft long buildings. Transverse spacing is 17.5-18.0-17.5 ft, plus 8-ft overhangs, totaling 69 ft.

After the footings had been cast and cured last fall, lifting collars for the floor slabs and roofs were threaded onto the 72 first-tier columns and they were erected in place by a crawler crane.

At that stage, both tower areas were fully weather-protected. Timber decking, hung on the columns, formed a roof over the areas. The entire roof and sidewalls were then covered with 75,000 sq ft of lightweight plastic material. Six 125,000-Btu oil-burning heaters warmed each enclosed area during the coldest weather.

Average crew for the wintertime construction of the concrete slabs totaled about 40, according to B. R. Sloan, project manager for the Long Construction Co., Kansas City, Mo., general contractor for the apartment buildings and a three-story, ramp-type, 360-car garage attached to both towers. The crew included 13 carpenters, 9 reinforcing steel setters, and 18 concrete workers and laborers.

The lifting sequence was practically the same for both buildings. The slabs were lifted in pairs, by hydraulic jacks atop each column.

Building B was erected first. After the lower 52-ft 9-in. tier of the 36 columns had been erected and guyed in place, the roof and 12th-floor slabs were lifted from the casting bed to just above the second floor level near the tops of the columns. The entire tier of columns was plumbed, and the lifting collars supporting the slabs were securely wedged to the columns.

Slabs 11 and 10 were then lifted to within 2 in. of the bottom of slab 12 and wedged in place. This was repeated with the next three pairs of slabs 9 to 4.

Slabs 3 and 2 were then lifted to a point about 5 ft above the ground floor and about midheight of the columns to prevent buckling of the columns and to add stability to the entire tier.

The first floor and ground-floor slabs were then lifted to ground-floor level. The ground floor was wedged and welded in final position. Floors 3 and 2 were hoisted up beneath floors 5 and 4, and the first floor was lifted to final position.

While welding crews made permanent connections at the ground-floor and first floor levels, the second-tier columns were erected and guyed in place. These column sections are 39 ft long and extend to within a couple of feet of the 7th-floor level.

After the hydraulic jacks had been positioned on the top of the columns, the roof slab and 12th floor were lifted to within about 6 in. of the tops of columns and wedged securely.

The tier of 36 columns was plumbed. Three pairs of slabs 11 to 6, were then lifted to just below slab 12 and wedged tight. Slabs 5, 4, 3 and 2 were then lifted to their final positions and permanently welded to the columns.

The third tier of columns, 35 ft high, was then erected to just below the 11th-floor level. The roof slab and 12th floor were lifted to the tops of columns and slabs 10 to 6 lifted to final position. The fourth tier of columns, about 20 ft high, was then erected and plumbed after the 12th floor was lifted to final position.

The final operation was to lift the roof slab and the 11th floor—which had been temporarily wedged just above the 10th floor—to final positions and permanently weld them to the columns.

Careful controls were kept throughout the lifting operations to see that the columns didn't drift off line, and that the towers were kept truly vertical. In addition to transit and level observations as columns were erected and the floors lifted to position, two plumb bobs at opposite corners of each structure were kept under close observation.

The plumb bobs were 6-in. dia steel cylinders filled with concrete. They were suspended by piano wire in drums of oil to minimize the effect of wind.

The contractor saved considerable time and expense by carrying as much material as possible on the roof slabs as they were lifted up the columns.

The first three tiers of columns were erected by a 160-ft boom crawler crane, but fourth-tier columns were carried up on the roof slabs.

Other major items that rode up on the roof slabs included the hydraulic pump and pressure system for operating the jacks, a console with electrical system for controlling lifting operations, a self-propelled scaffold tower for hoisting jacks atop the columns, three 250-amp and one 200-amp welding machines, together with welding equipment.

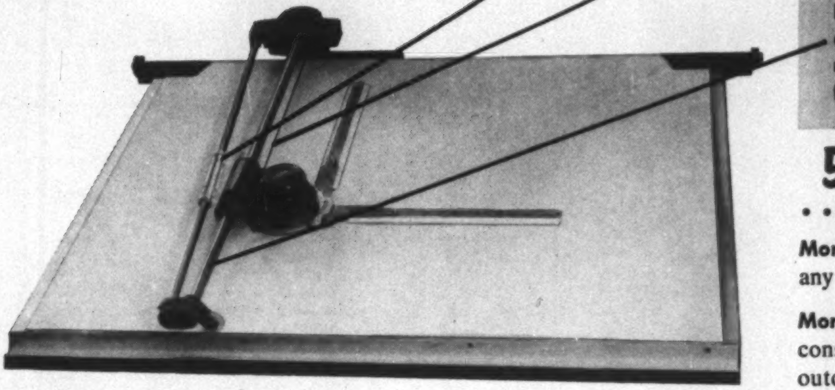
Handling the shear wedges for each floor was a problem. It was solved by making hooks out of ¼-in. rods, with which the wedges could be hung from the lifting collars for each floor. This simple trick saved over $1,000 compared with the cost of hoisting them by any other means.

Thirty-three of the columns in each building are 14-in. wide-flange sections. First-tier columns weigh 237 lb per lin ft; second-tier, 176 plf; third-tier, 127 plf; and fourth-tier, 87 plf. The other three columns, located in the areas containing stairwells and elevators, are welded box sections.

The lifting collars embedded in the concrete slabs and providing both temporary and permanent connections between slab and column are welded assemblies of four 6x3½-in. channels, 5 ft 6 in. long. The assemblies have inside clear dimensions of 2 ft 2 in. parallel to the column flanges and 1 ft 6 in. parallel to the webs.

Shear plates 12 in. wide by 7 in. deep, welded to the column flanges support the lifting collars and slabs. They vary in thickness from ⅜ in. in the lower tier of columns to 1¾ in. in the upper tier, due to the reduction

(*Continued on p. 51*)



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2048

"The 14-inch J&L Light Beam was the most economical member we could use for the spans," say Robert and Company Associates of Atlanta, the designers.

New Atlanta Airport Terminal...Designed

Air traffic comes in, all at once, in Atlanta, Georgia. Often there are as many as 60 planes in the terminal, all loading and unloading. Atlanta is one of the most important airlines transfer points in the country. Everyone wants to hold lay-over times to a minimum, so heavy traffic peaks are unavoidable.

The problem was to design a new terminal that would make life easy for passengers and airlines people. And do it as inexpensively as possible.

That's why the compact, 11-story central terminal building (with control tower on top) was conceived—with six long concourses splayed out like fingers to provide plenty of parking space for planes—with easy access everywhere for passengers and airlines personnel — with 8 special second-story "jetways" that telescope out from above the concourses to let jet passengers on and off with no stair climbing, high and dry out of the weather — and with underpasses beneath each concourse for baggage trains to run, safely separated from passenger walks.

Design Economy was gained in concourse construction and in stair stringer fabrication by selecting J&L lightweight structurals — 14-inch J&L Light Beams for concourse and main terminal roof purlins—10-inch J&L Junior Channels for stair stringers.

Because they are easy to adapt, you can use J&L lightweight structurals in a wide variety of architectural designs. They reduce the steel tonnage you'll require. And because they're easy to fabricate, raise, and position, they cut labor costs.

To find out more about J&L lightweight structurals, call or write direct to *Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pennsylvania.*

J&L STEEL

Jones & Laughlin Steel Corporation

3 Gateway Center, Pittsburgh 30, Pennsylvania

Steel

for the Jet Age with J&L Light Beams

Key factor in concourse design was use of J&L 14-inch Light Beams as purlins. Span between rigid bents varies from 19′ 7″ to 24′ 0″. Formed metal decking, which supports insulation and built-up roofing material, is welded to the purlins. Purlins and girders also support a maze of concealed piping.

J&L 14-inch Light Beams and J&L 10-inch Junior Channels were used extensively throughout the new "Jet Age" Atlanta Airport Terminal. J&L 10-inch Junior Channels were used as stair stringers. J&L 14-inch Light Beams are purlins, mainly in two-story concourse sections.

OZALID *NEWSLETTER*

NEW IDEAS TO HELP YOU WITH ENGINEERING REPRODUCTION AND DRAFTING

Standard materials, plus new thinking, result in big time and cost savings.

How to break the halftone costs barrier

Some of the sharper repro men looking to cut the high cost of using halftones in quantity have come up with this little timesaver that goes for pennies per halftone. Here was the problem: 200 rush copies of 16 technical photographs were needed for a service manual . . . a total of 3200 prints. This job would usually run about $2,000 and take ten days . . . that was too long and cost too much.

A bright lad thought about their Ozalid whiteprinting equipment and worked out this procedure: First an 8″ x 10″ screened film positive was made by projection from a 4″ x 5″ negative, emulsion away from emulsion. This insured proper orientation of the print in the final stage.

Next, the film positive and Ozalid black-line plastic-coated paper (105SZ) were processed in an Ozalid Printmaster 810 at a rate of 12 feet per minute. The 42-inch width of this machine permitted two operators to work simultaneously, cutting total production time virtually in half! The choice of Ozalid paper Type 105SZ was an excellent one. It gave crisp; black-line images of great density due to the paper's plastic coating. The entire project took just under a fast six hours instead of the usual ten days, and cost about $100. Total savings: $1900 and 9½ days of production time. Pretty smart, we think. By the way, we've got sample packages available for the asking that might very well give you the same dramatic results. Why not write us at Ozalid, Box YY8, Johnson City, New York. We'll be glad to help.

Looking for a fast case of the blues?

The happy kind, we mean. The clean, rich, decisive blue image that Ozalid's new Super-Speed Blue-Line (200SS) gives. And when we say fast, that's exactly what we mean. *Poor originals are copied up to ten feet per minute faster than with regular copy papers.*

This is the first Ozalid copy paper specifically designed for copying semi-opaque originals at higher speeds . . . at no sacrifice of line density in any sense!

But what does all this mean in practical benefits, other than increased production at no loss in quality?

Well, for one thing, it means that you can now do a fine job on semi-opaque material, such as one-sided letters, documents and bulletins, at the lowest cost of any copying process . . . even if they're printed on bond papers!

Another benefit is the clean, readable copies you can now produce from soiled, yellowed documents and low-translucency materials much faster than ever before.

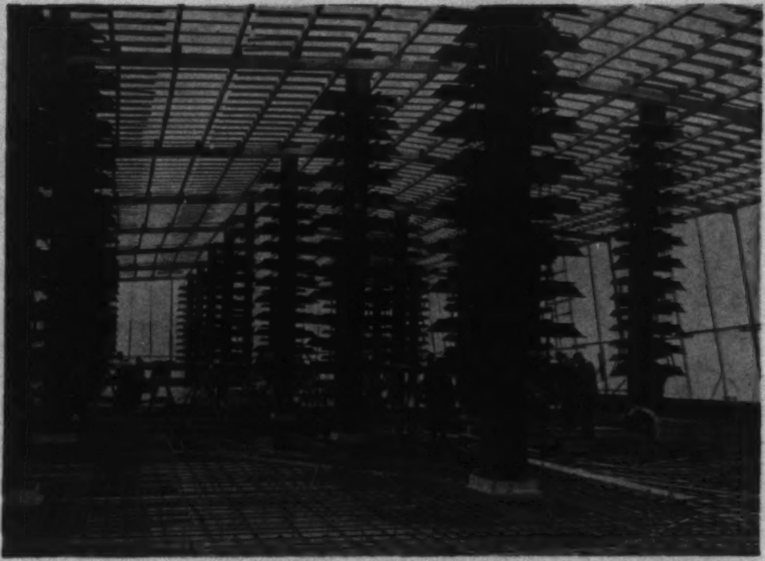
Is that all? Not by a long shot. 200SS actually turns low-powered ultraviolet machines into pretty fast units. And the faster printing speeds mean faster return of the original after each cycle.

Why not try this superb, high-density blue-line paper today? It really makes sense. Just call your local Ozalid representative for a demonstration.

***Ozalid**—Division of General Aniline & Film Corp. • In Canada: Hughes-Owens Co., Ltd., Montreal* in column depth. Steel wedges placed between the top of shear plates and bottom flange of lifting collar transfer the vertical load of the floors to the columns. The wedges also vary in width, from 1½ in. in the lower tier to 2⅜ in. in the fourth tier.

In addition to the vertical shear connections, moment connections were made between column and lifting collar. This was done by welding a 12x2¼x½-in. plate across the column flange and to the top flange of the collar. Welds were also made between bottom flange of collar and the wedge, and between wedge and shear plate to complete the moment connection.

Horseshoe-shaped lifting lugs and lifting plates were also welded in the collar assemblies on each side of the column web, to receive the 1¾ in. lifting rods extending up to the hydraulic jacks on top of the columns.



LIFTING COLLARS, positioned for embedment in the lift-slabs, give the steel columns a Christmas tree appearance. Rods threaded through collars and jacks lifted the slabs.

The greatest single time-saver and labor-saver in the entire operation is a 45-ft-high mobile scaffold tower, made by the lifting contractor specifically to handle the lifting jacks and rods.

The rig is made of conventional tubular scaffolding mounted on a platform that rolls on four small wheels. Hydraulic power drives the front wheels by means of a hydraulic pump, gear reducer and chain drives to make it self-propelled, while a steering mechanism controls the rear wheels to give it direction of movement.

A hydraulic hoist at the rear operates a ¾-in. wire-rope load line, which passes up to a sheave at the top of the tower, across the tower to a second sheave at the end of an outrigger and down to pick up a maximum load of 2,000 lb.

The 36 hydraulic jacks weigh about 12 tons, and the seventy-two, 52-ft-long, 1¾-in. dia lifting rods weigh a total of 14 tons.

The top of the tower is guyed by tension cables running from the four corners diagonally down to the corners of the operating platform.

It took the lifting crew about 2½ days to get ready to lift the slabs. This included hoisting a hydraulic jack to the top of each of the 36 columns, attaching the lifting rods, and completing the electrical installations that controlled the entire operation.

First step, at each column, was to pick up a jack with the scaffold tower, thread it on to one of the 1¾-in. lifting rods and position the jack on top of the column. The other rod was then lifted and threaded into the jack. Both rods were attached to the lifting hooks welded into the lifting collars that were embedded in the reinforced concrete floor slab.

All lifting operations were controlled by a single console near the center of the building. Oil pressure for the pumps was furnished by a six-cylinder diesel driven pump with a capacity of 35 gpm under a lifting pressure of 2,000 psi.

A single 1¼-in. pressure line led from pump to console, from which four loop circuits of ½-in. pressure pipe served 9 jacks each.

The complete lifting operation was controlled by an electrical circuit connecting the console with all 36 jacks, in series. A solenoid operated a four-way valve controlling the four pressure loops. When the solenoid was actuated by the electric circuit, it put the four-way valve in lift position, and all jacks began to rise. After they had all made their total rise of ½ in., the solenoid automatically shifted the valve into down position.

If any one jack failed to complete its ½-in. stroke, the solenoid could not shift for a downward stroke of the other jacks. This fool-proof control insured the slabs never being out of level at any one column by more than ½ in. If a jack failed to complete its upward stroke a red light at the jack indicated the failure. An amber light indicated the jack had failed to function as it started its downward stroke.

Average lifting speed was about 7 ft per hour. It depended on the temperature and viscosity of the oil in the hydraulic system.

When lifting a pair of 9-in. floor slabs, a jack carried a maximum load of about 50 tons. Consequently, the 75-ton jacks provided a safety factor of 1.5.

Lifting operations were performed by a five-man crew, plus a foreman. In addition, a five-man crew was kept busy welding.

Column splices required considerable welding. About 10 lb of welding rod was needed at each. One welder could make two complete column splices per day.

Basically, the lifting sequence is the Youtz-Slick system modified to give automatic operation with solenoid control, according to Wm. D. Shull, superintendent, Skyhook Lift Slab Corp., which performed the lifting operations under a subcontract.

The solenoid adaptation, developed by the Research, Engineering and Development Co., Kansas City, permits faster lifting operation and bigger loads than using manual controls at the console. Moreover, the manually controlled console can lift successfully at only as many columns as the operator can see, according to Mr. Shull. Less lifting pressure is also needed to lift equal loads with the automatic console.

The twin apartments, called Huron Towers, with attached garage, contain a total of 25,000 cu yd of concrete; 1,700 tons of reinforcing bars; and 1,375 tons of structural steel. There will also be nearly 2.5 miles of extruded aluminum sections extending vertically from 4 ft below the first floor level to 3 ft above the roof. There will be 56 of these sections 112 ft long, equally spaced around each building. The 6½-in. deep section has a 2½-in. exterior flange and a 4½-in. interior flange bolted to the floor slabs and roofs.

W. C. Reeder is project engineer and Joe McCalister is field engineer for the Long Construction Co. Hugh V. Foley is resident engineer on the project for the Federal Housing Administration.

King & Lewis and R. H. McClurg Associates Inc., both of Detroit, are architect and consultant, respectively, for the owner, Future House Apts., Inc. Project completion date is late spring of 1961.

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Lee B. Washbourne has sparked

Organization

The Oklahoma Department of Highways has been completely reorganized. The new organization chart became effective March 1.

This reorganization was already started when Oklahoma's administration of the Interstate program was brought under the scrutiny of the Blatnik committee (ENR May 12, p. 21).

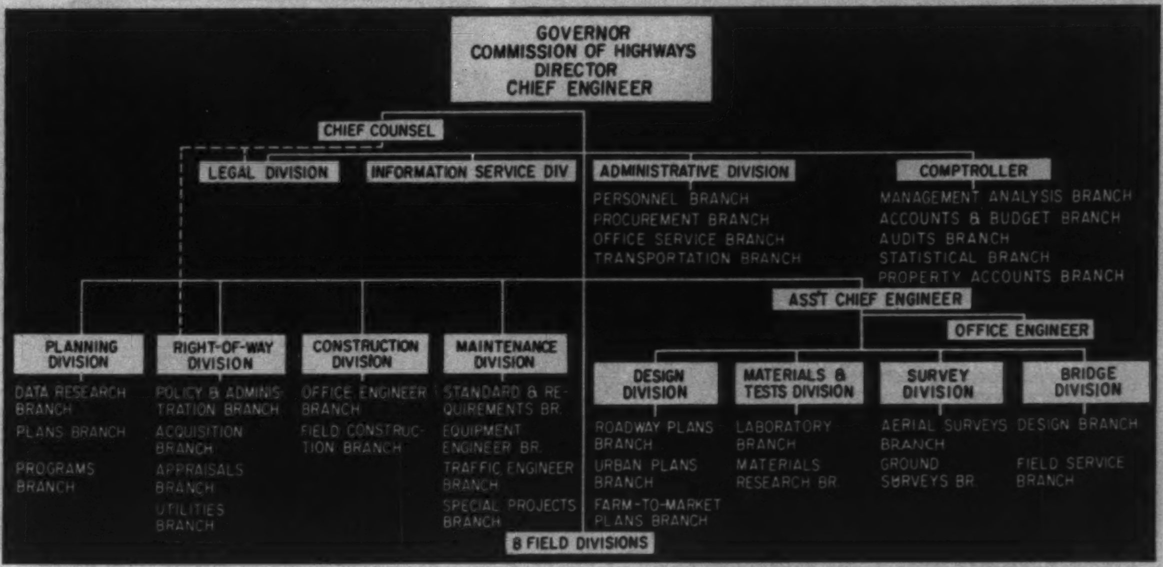
Director of the Oklahoma agency is Lee B. Washbourne, former Assistant Chief of Staff for Installations, U. S. Air Force (ENR May 2, 1957, p. 46). Gen. Washbourne became Oklahoma's highway director in July, 1959, following retirement from military service.

In discussing the reorganization, General Washbourne says:

"Prompting this action were the needs to formalize the organization, to reduce the number of separate staff divisions, to provide for essential functions not formerly available, to emphasize and tighten fiscal control, and to free the engineering groups from support duties."

His timing was established by the date set for placing the Highway Department under the new merit system for state employees, March 31.

The new organization was spelled out by a series of administrative orders. The Highway Commission decided it would rather outline the organization outside merit board rules so that ex-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8 FIELD DIVISIONS

. . . a complete reorganization of Oklahoma's highway department, from the top down.

Makes Highway Department More Effective

tensive changes in duties and functions might be made more easily.

Reorganization has been extended down to and into the field divisions, including the maintenance districts (counties).

Among new divisions created are the Administrative Division and the Comptroller. In the previous organization chart, there had been no centralized administration; such housekeeping supervision as existed was saddled to the maintenance engineer as extra duty, according to General Washbourne. Included in the Administrative Division are the Personnel, Procurement, Office Services, and Transportation Branches.

A key change in the new set-up is assignment of contract lettings and negotiations to the Procurement Branch, along with its purchase-order functions.

Says the General: "We felt that it was just as logical for the procurement branch to buy roads, bridges and surveys as to purchase road oil and vehicle parts."

In describing the second new division, the director states:

"The word 'comptroller' seemed to symbolize the concept we wanted in pulling together the several fiscal functions. Accounting is at present well-manned, and essential audits are provided by the State Examiner and Inspector's office. Budgeting is now in the Department and there has been no effort at all toward management analysis or property accounting. Previously, there was a unit called 'Department of Statistics' but it was actually a misnomer for a study group usually called 'Highway Planning Survey.' The new statistical branch of comptroller will be built around the automatic data processing center."

Major change on the engineering side of the organization was to place four of the production divisions under the immediate supervision of a new office of "Assistant Chief Engineer." These are the divisions that carry projects from the programming stage to the contracting stage.

The Department has been spending over $2 million per year in preliminary engineering costs of these divisions. According to the Director, "It is our hope that immediate supervision of the Assistant Chief Engineer will either reduce this cost or produce a larger program."

Last fall, a group of engineers was given the assignment of forming a program development division, and given the task of developing a long-range plan and program for Oklahoma highways. Under the new organization chart, this group was renamed the "Planning Division"; their work is augmented by that of the highway planning survey group, now called "Data Research Branch." General Washbourne says, "This group has already done highly effective and indispensable work in establishing the rudiments of a long range program."

The Information Service Division replaces a single press clerk, and is set up to tell the Highway Department's story to the people of the state. It will also furnish information to members of the state legislature and other branches of the state government.

As shown on the organization chart, the Chief Counsel is in coordinating position on matters jointly affecting the Legal and Right-of-Way Divisions. According to the Director, this arrangement is quite successful in that the Chief Counsel is relieved of routine administrative duties.

An objective of the new organization chart is to reduce the number of lower paid and less qualified employees to achieve payroll balance. It is planned to mechanize as many office operations as possible.

According to Lee Washbourne, the new organization is expected to permit the Department to accomplish from ⅔ to ¾ of the normal work load of engineering.

The remaining fraction of the normal load, plus short-term or unscheduled programs, will be done by consulting engineers.

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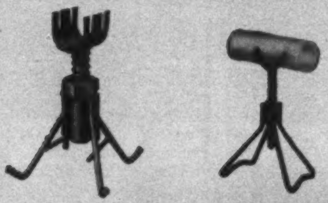

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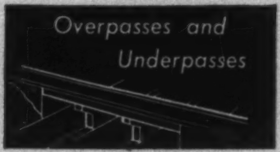
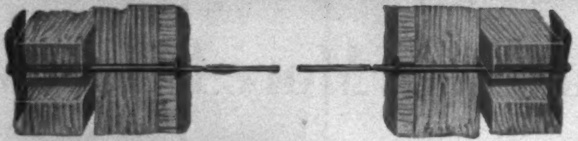

Overpasses and
Underpasses



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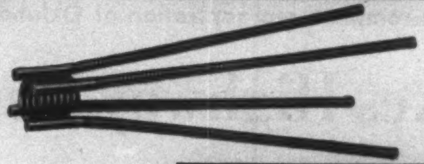

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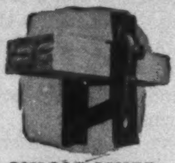

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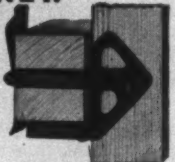
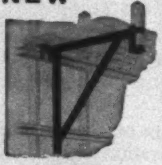


WALER BRACKET

NEW



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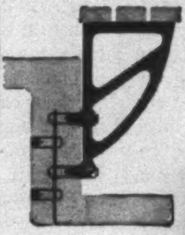
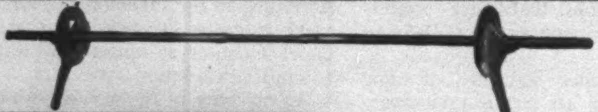


RISERFRAMES

Stadiums
and
Grandstands



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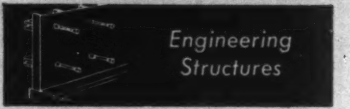
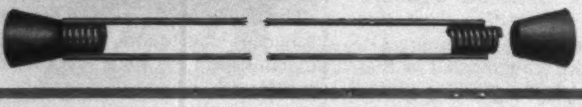
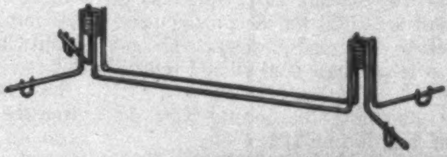
TILT-LOCK ASSEMBLY

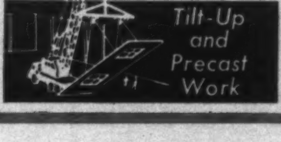

Engineering
Structures

COIL TIES





PICK-UP INSERTS


Tilt-Up
and
Precast
Work

Field and Office

Cartographatron helps Chicago road planners find out . . .

Where the Driver Wants to Go

The Chicago Area Transportation Study, which will terminate this year, is the largest and most thorough of its kind ever undertaken (ENR July 21, p. 34). Involved is the study of more than 10 million individual person trips every weekday on the area's highways and mass transportation lines.

Because of the volume of data involved, it was necessary to develop high-speed analytical devices never used before in traffic surveys. Chief among these is the Cartographatron, which is an electronic device designed specifically for presentation and evaluation of trip desire line patterns.

Desire lines are straight lines that connect points of trip origins with destinations. Because of the number of trips involved in a typical study, methods have been developed to present simplified summaries of trip desires and patterns.

In general terms, simplification involves (1) grouping of points of origin and destination, and (2) grouping the desire lines themselves.

Method selected for the Chicago study involves the use of grid coordinates and the development of desire line density charts. Shortcomings of other computer methods lead to the development—by personnel of the Armour Research Foundation—of a device which would automatically display trip desire lines. This machine is the Cartographatron.

It is an electronic analog device that can display a dot or line of required density and location on the face of a cathode-ray tube.

Input is on magnetic tape prepared on the Burroughs Electro Data "Datatron 205." The output is a 4x5-in. photographic negative.

On the input tape are the coordinate values of the origin of the trip, trip direction, speed (factored trip weight) and distance of the trace, plus trip characteristic data. As this information is read from the tape, a dot of light appears on the face of the cathode-ray tube and moves across it to the trip destination.

The photographic negative records the light displayed. The shutter of the camera is fixed in an open position, and all traces are added to the same negative. The resulting density at any point on the negative is a function of the number and speed of the traces which passed over that point.

Aside from speed of processing, the ability to select trip characteristics is a major advantage of the Cartographatron. In the Chicago study, the analyst can select from over 4 million possible displays, each of which represents some combination of trip characteristics (purpose and land use at destination).

A quantitative measure of trip density can be done on the displays by the use of auxiliary devices.

(Field and Office continued p. 56)

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Made in 30- and 50-ton capacities, the tongs have a ¼-inch minimum jaw opening, 1¼-inch maximum. Each jaw has a series of teeth to insure positive gripping. The 30-ton tongs weigh roughly 1,150 pounds, the 50-ton tongs about 1,650 pounds. Connecting brackets are furnished to fit the particular type of extractor being used.

For more information, and a quotation, contact your Heppenstall Company Representative or Materials Handling Division, 501 Sixteenth Street, New Brighton, Pa.

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Slipforms Speed Erection Of Hotel Elevator Shaft

Slipforms, lifted by hydraulic jacks climbing up steel rods, reduced construction time to 16 working days on a 14-story elevator shaft for Honolulu's Princess Kaiulani Hotel.

Carpenters and electricians used the slipform rods to establish elevation of openings and conduits.

B. M. Heede Inc. of New York City erected the shaft. Haas and Haynie of East Los Angeles and San Francisco, is general contractor. The Sheraton Hotel chain is the owner.

City-State Cooperation Saves on Storm Sewers

The City of Tacoma, Washington, finds itself in the enviable position of saving several hundred thousand dollars on the construction of new storm sewers by participating with the state on both the design and the cost of storm drains required within the city for the state's Tacoma-Everett Freeway.

Sewer engineers of the state and the city got together and approved an agreement setting forth this policy: The state would design and construct the storm sewer larger than was needed for the Freeway and large enough to meet design requirements as determined by the city. The state would then accept water from the city drainage system into the facility built by the state. The city pays the construction cost of only that portion of the storm sewer that is necessary to provide additional capacity to carry the city's share of storm waters.

Gilbert M. Schuster is the director of public works and Myron D. Calkins is the city engineer of Tacoma, under whose guidance the participation program is being carried out. H. A. Hagestad is the city's coordinating engineer.

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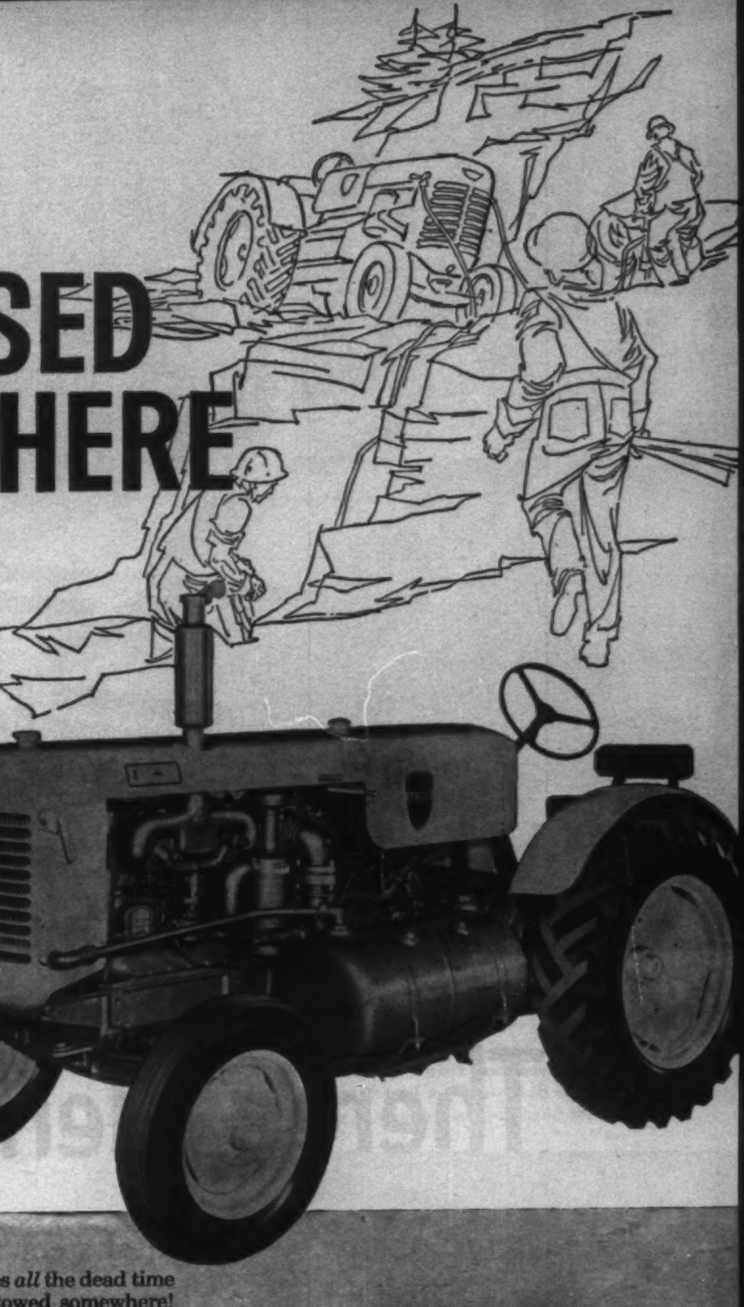

Here's a self-propelled air compressor that eliminates *all* the dead time spent by conventional compressors waiting to be towed somewhere! The Tractair is a 42-hp tractor and a 125-cfm air compressor. It brings air power to sites you'd fear to tread with truck-towed compressors. You can park it in a ditch or on a steep slope, attach the hose, and start drilling. When finished, the operator drives it to the next job — without waiting for a tow truck or men to jockey it into position. You can drive up close to the work, too, which means shorter hose . . . less hose damage . . . and full 125 cfm power at the tool.

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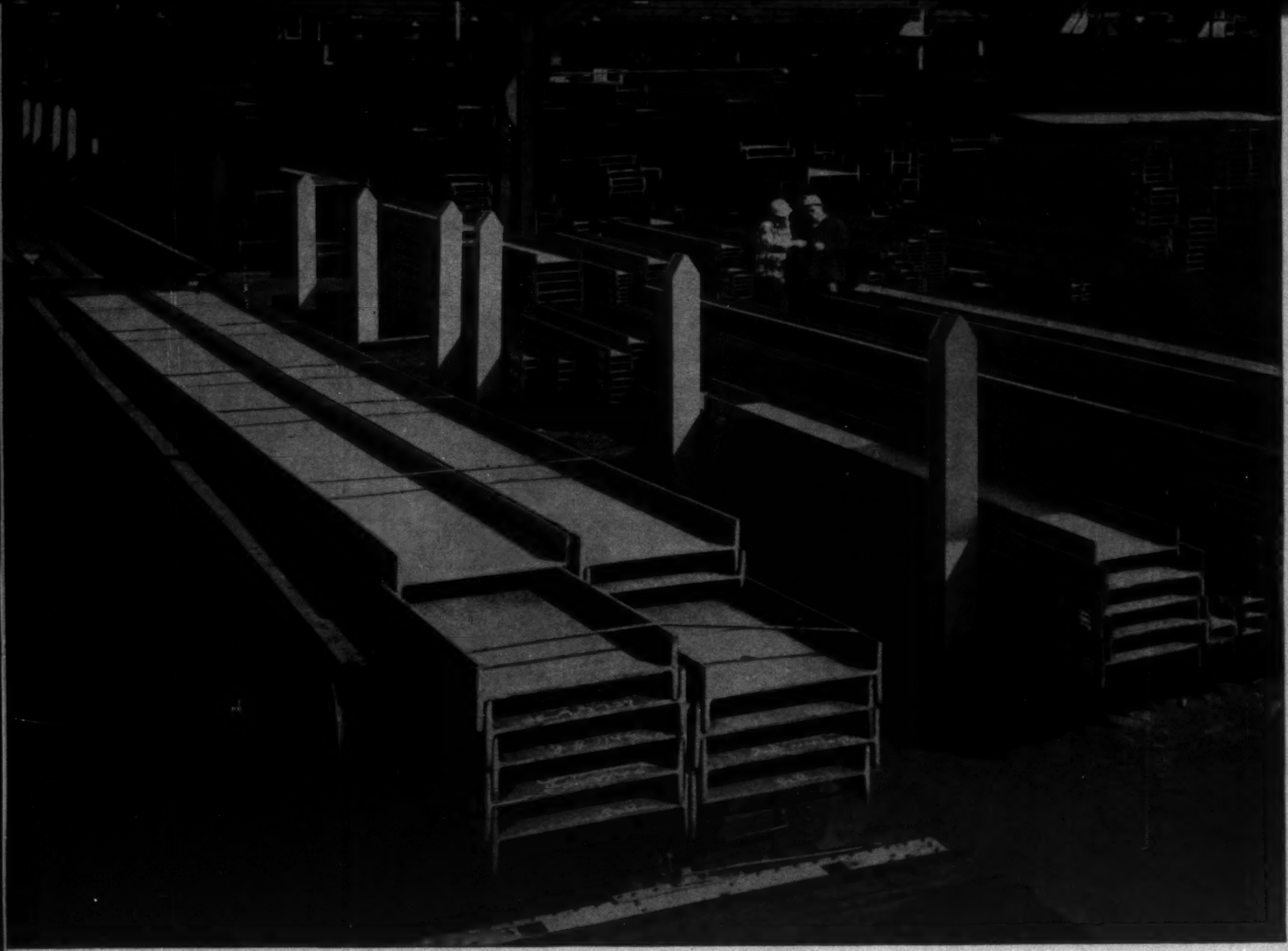

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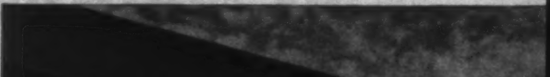

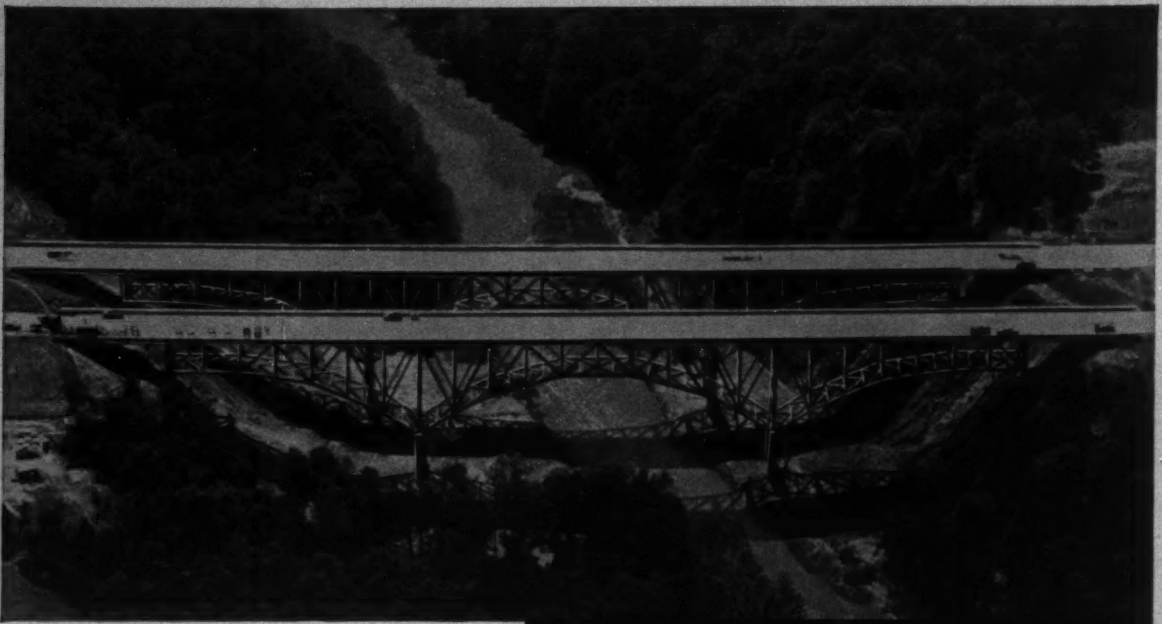

Now part of Route Ohio No. 1 at Painesville in Lake County, Ohio, is this twin-cantilever truss bridge built by Mahon for the Ohio State Highway Dept. General contractor for this section of the road project was the National Engineering and Contracting Co. of Cleveland.

Structural steel for new Ohio twin-span bridge...

FABRICATED and ERECTED by MAHON

This twin-span bridge over the Grand River is an important link in the new Turnpike connecting-road-network now taking shape in Eastern Ohio. The bridge, and its steel-girder approaches, required more than 3100 tons of structural steel . . . fabricated and erected by Mahon.

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MAHON

New Products

Plastic Film Protects Structures

A protective coating of epoxied vinyl plastic under development and use in the northwest for the past six years has become available nationally through the acquisition by Ren Plastics, Inc., Lansing, Mich., of the formulation from the R. L. Stevenson Co., Seattle, Wash.

Now called REN-coat, it is sprayed on in two layers, a primer and a finish coat, to protect surfaces from moisture, corrosion, impact, temperature change and chemical attack.

Usually applied in 6 to 10 mil thicknesses, it can be built up to 40 mils, and used on any type material—metal, wood, concrete and others. It is claimed that each mil of thickness is equivalent to one year of wear. The material can be applied in any color desired, and can be made to match natural finishes. After application, seven or eight days are required for the film to cure to its state of maximum resistance.

The primer coat causes the elastic film to bond tenaciously to the surface, so that the adhesion is unaffected by any structural movements. It is also said to be unaffected by temperatures between minus 65 and plus 150 deg F. The porosity-free texture of the film permits it to be washed easily with mild detergents and warm water.

The epoxied vinyl membrane has been applied to roofs, lighthouse exteriors, concrete and metal walls of buildings, swimming pools, underground storage areas and floors. REN PLASTICS, INC., LANSING, MICH.

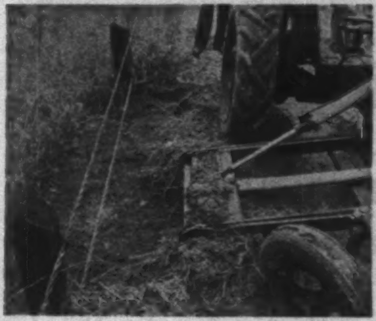
Sidedozer Eliminates Hand Labor

The Walker-Cline Sidedozer is designed to perform work usually done by hand labor, such as cleaning or grading under highway guard rails, backfilling of shallow trenches, finish-grading curb areas and trimming or grading around culverts.

Average guard rail or ditch cleaning operations can be done at a rate of 400-600 ft per hour, depending upon the quality and volume of material that has to be moved.

The unit will fit most four-wheel tractors and the entire assembly may be attached or removed in 20 minutes with a hammer and a pair of pliers. The hydraulic connectors may be engaged or disengaged by a simple twist of the wrist.

Horizontal and vertical positions or motions are controlled by separate hand hydraulic valves. The unit is suspended beneath the tractor to permit pulling or pushing the load to or away from the side of the tractor. This is accomplished by reversing the blade. Maximum reach is approximately 4 ft outside the tire tread. EASLEY ENGINEERING AND MANUFACTURING CO., 2440 GOODRICH AVE., FERNDALE 20, MICH.



(*New Products continued p. 62*)

New book tells
Where . . .
How . . .
to place reinforcing bars

Written for bar setters and inspectors . . . as a manual for apprentice courses . . . and a reference for specification writers, architects, engineers, and detailers.

Contains complete specifications and instructions for placing reinforcing bars, welded wire fabric, and their supports.

Prepared under the direction of the C.R.S.I. Committee on Engineering Practice.

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Concrete Reinforcing Steel Institute
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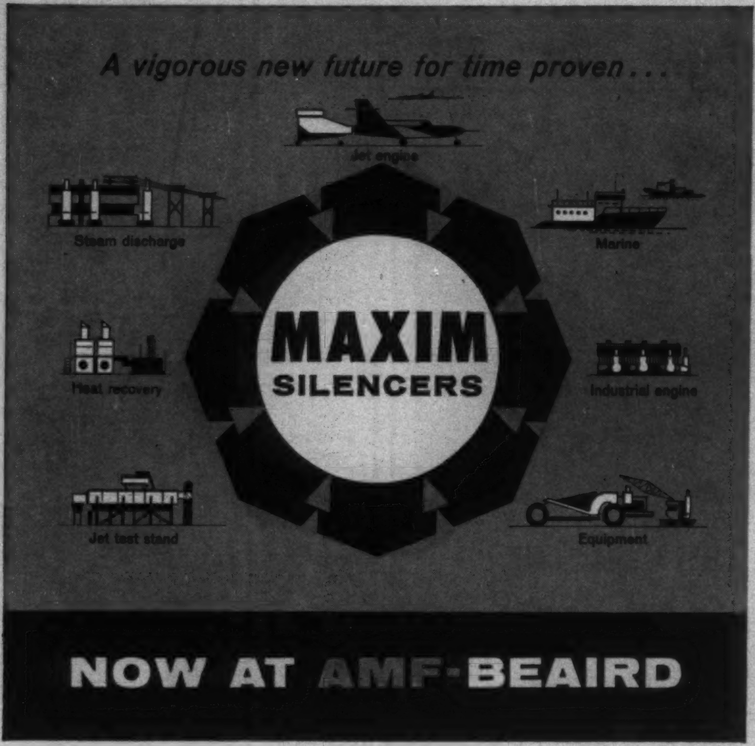
FOR MASONRY CONSTRUCTION JOINTS

RUBBER or VINYL

Williams Efficiency Waterstops are made from Natural Rubber Stock, and designed for maximum effectiveness in any type of cast-in-place construction joint. They will bend around corners—will not crack or tear from shear action. Tensile Test: 3990 lbs.; Elongation Test: 650%. Available in rolls up to 80 feet in length. Field splicing is simple. Williams Waterstops can also be furnished in Vinyl or Neoprene for industrial uses where resistance to oil and other injurious wastes is desirable. These highly effective Waterstops are now in use in hundreds of industrial plants, commercial and public buildings throughout the country.

See Sweet's, or Write for Information.

WILLIAMS
EQUIPMENT and SUPPLY CO.
456 W. Eight Mile Rd., Hazel Park, Mich.



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(5" Lens)

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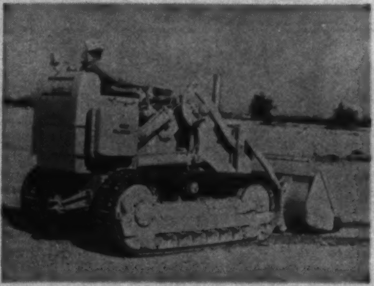
R. E. DIETZ Company Dept. 58 Syracuse, N. Y.



Cat Traxcavator Features Power Shift Transmission

The 955 Series H Traxcavator is a 100 (net) hp machine that features a power shift transmission.

It is powered by a turbocharged four cylinder diesel engine. Bucket size has been increased from 1½ cu yd to 1¾ cu yd.

The power shift transmission permits single-lever shifting through all phases of the work cycle. A total of four work speeds are available: two gear speeds in both the high and the low work ranges. Forward speeds are: low range, 0-2.08 mph and 0-3.86 mph; high range, 0-2.68 mph and 0-4.93 mph. Reverse speeds are: low range, 0-2.62 mph and 0-4.83 mph; high range, 0-3.35 mph and 0-6.16 mph.

Superior digging action and a 23% increase in lifting capacity are said to result from a new hydraulic system for the loader.

Other improvements in the 955 Traxcavator include increasing the number of track rollers from five to six, adoption of a heavy duty undercarriage with welded track guiding guards, lifetime lubricated rollers, a 52-gal capacity fuel tank and a more efficient and more comfortable operator's compartment. CATERPILLAR TRACTOR CO., PEORIA, ILL.

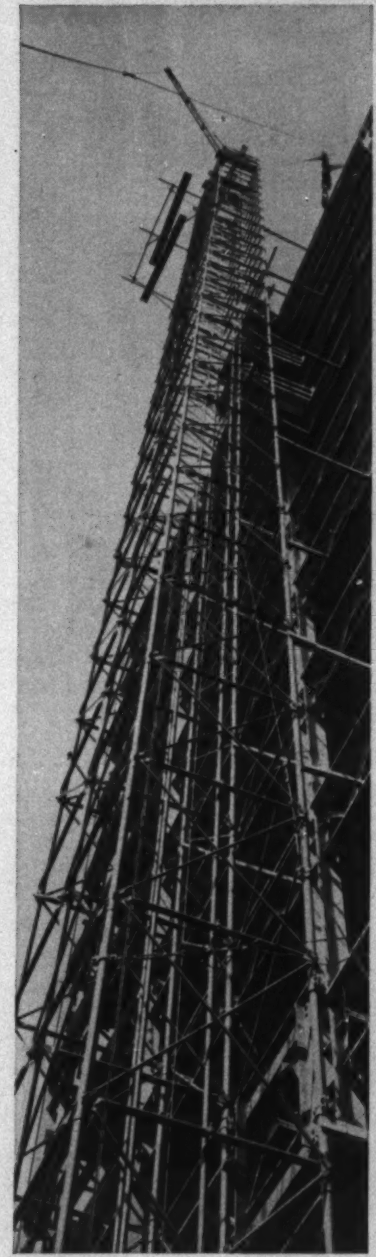
Power Buggy Available With B-W Converter

A bulk-material mover features a new Borg-Warner torque converter drive and operator-controlled dumping action.

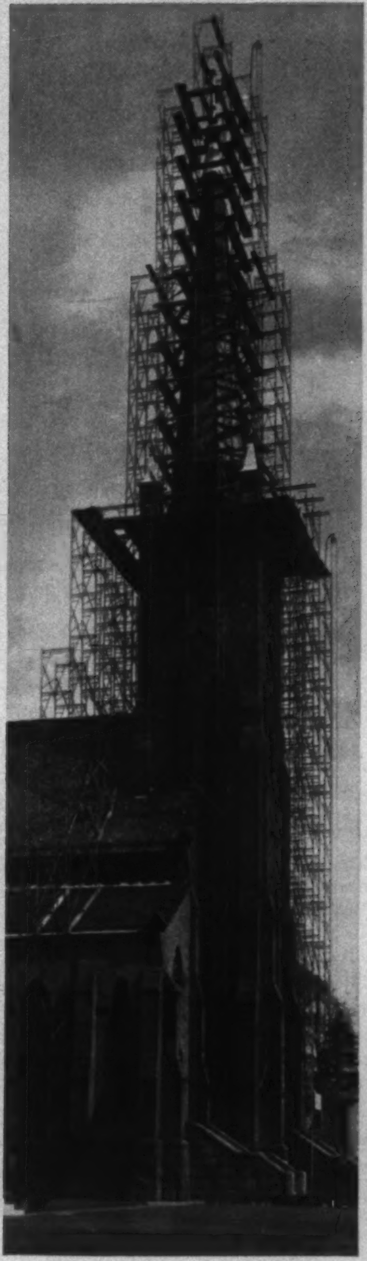
The Model M-30A truck is powered by a Wisconsin 18-hp. air-cooled engine driving the converter and transmission unit. A 12-volt starting system is standard on all models.

Standard beds for the prime mover include an 18-cu ft dump body and a 42x42-in. flat bed. The bulk material body has a sliding end gate, swinging tail gate and dumping controls to accommodate varied rates of load discharge. THE PRIME MOVER CO., MUSCATINE, IOWA.

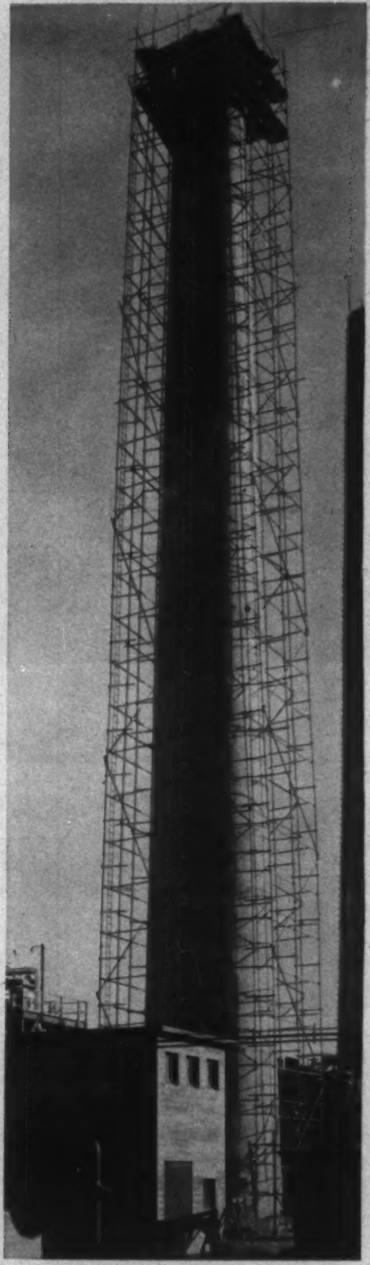
Scaffolding Methods . . . by PS CO.



FAST MATERIAL LIFT—This 227′-high "Gold Medal"® Steel Hoist Tower is used by The Wm. Simpson Constr. Co. to move materials rapidly up when and where needed on the First Federal S. & L. Ass'n Bldg., Los Angeles.



OVERALL FOR STEEPLE JOB—To provide Eastern Renovating Contractors with safe, stable, wide, overall working platforms for steeple repairs, "Trouble Saver"® Scaffolding is built up quickly from the ground and roof of this church in Wallingford, Conn.



UP HIGH FOR WRECKERS—Here, "TubeLox"® tube and coupler Scaffolding is easily erected from only four basic parts to provide the height necessary for demolition of this concrete chimney in Torrance, Calif Emsco Concrete Cutting Co., contractor.

Complete scaffolding equipment and engineering service offered through nation-wide sales offices or representatives. Look under Patent Scaffolding in the Yellow Pages for your nearest source.

SALES RENTALS

THE PATENT SCAFFOLDING CO., Inc.

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Gardner-Denver RP600 rotary portable compressors at work on sewer job.

Work 'em anywhere—in any weather
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You can depend on Gardner-Denver rotary portable compressors to deliver the air you need in any weather—any climate, any altitude. They are ruggedly built, run smoothly, cost little to maintain. Six capacities from 85 to 900 cfm. Write for Bulletin RC-1. See your Gardner-Denver distributor soon.

All-weather operation—assured by efficient cooling system.

No dry starts in cold weather—clutch on RP125 and larger sizes assures full lubrication when compressor is engaged.

Thrifty—"THRIFTMETER"® fuel control regulates engine to meet air demands.

Easy to maintain—rotors and blades can be inspected and changed in minutes.

Gardner-Denver RP900 rotaries provide power for 5½" drills on Niagara power project.

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Gardner-Denver Company, Quincy, Illinois
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Unit Prices

Prestressed, cast-in-place concrete used for . . .

Cook County Overpass, Illinois

Concrete, 1,853 cu yd of class X at $43.50 per yd, and 1,711 cu yd of class XX at $62.29 per yd, accounts for 28% of the total cost of the Wentworth Ave. grade separation over the South Route Expressway in Cook County, Ill. M. Schupak of Schupak & Zollman, Newton Square, Pa., prepared the design.

The Cook County Highway Department awarded the contract at $666,611, to Herlihy Mid-Continent Co., Chicago, on a low bid 5.6% under the second and almost 21% below the high.

Bridge spans are 117-91-101.4 ft, the width is 83 ft, for a total bridge area of about 25,600 sq ft; the depth is 4-ft 8 in. The consultant calculates cost per sq ft of superstructure like this:

Material	Quantities Total	Quantities Per sq ft	Unit Price	Per sq ft
Conc, cl X, 3000 psi	72 cy	.0028 cy/sf	$43.50	$0.12
cl XX, 5000 psi	1,711 cy	0.067 cy/sf	62.29	4.17
Steel, reinf	280,000 lb	11 psf	0.13	1.43
struct	40,325 lb	1.57 psf	0.31	0.49
Bronze expansion & bearing plates	45	lump sum	2,925	0.11
Prestressed steel		lump sum	56,235	2.20
Total sq ft cost of bridge bare superstructure				$8.52
Cost per cu yd, incl above items				$122

Prevailing wages in Chicago include: carpenter, $4.11; structural iron worker, $4.51; power crane & shovel operators, $4.30; common laborer, $3.10. All include fringe benefits.

The bidding included:

1C	Herlihy Mid-Continent Co., Chicago	$666,611
2	Arcole Midwest Corp., Evanston, Ill.	706,369
7	Robert R. Anderson Co., Chicago	842,168

Bids: 3-8-60 Items	Unit	Quantity	Unit Prices 1C	Unit Prices 2
Concrete, class X	cy	1,853	$43.50	$47.65
class XX cast-in-place	cy	1,711	62.29	90.15
Reinforcement bars	lb	585,352	0.1303	0.14
Prestressing steel	ls	job	56,235	51,400
Struct steel, furn & erect	lb	40,325	0.31	0.35
Bronze bearg & expan plates	ea	45	65.00	72.80
Met handrail, type A, furn & erect	lf	871	21.25	18.55
Conc piles, 16"φ, drilled & cast in place	lf	10,671	5.18	3.20
CMP underdrain, 6"	lf	500	2.00	2.75
Name plates	ea	2	49.00	55.00
Port cmt conc pvmt, 16½-10½-16½	sy	750	10.15	9.30
Silicone treatment	sf	4,180	0.025	0.02
Embankment, por granular	cy	387	6.10	4.05
Excavation for structs, cl A	cy	1,568	2.84	3.75
mod	cy	1,503	2.84	3.00
Embankmt, sand or gravel	t	1,386	1.95	3.20
Port cmet conc base crse, 9"	sy	9,550	5.40	5.90
pavement, 8"	sy	42	5.00	5.50
Corr warning strip	sy	162	16.80	16.15
Port cmt conc median, mod type 4	lf	234	6.55	6.25
Bit matl, prime coat	gal	1,271	0.24	0.18
Leveling binder, hand meth	t	3	19.00	25.00
Bit conc binder crse	t	913	11.55	7.45
surf crse, subcl I-11	t	686	12.07	8.20
Conc comb curb & gut, tp3	lf	4,578	3.05	2.60
Pavement fabric	sy	162	0.85	0.90
Longit curb expan jts	sf	319	0.90	0.90
Port cmt conc sidewalk, 5"	sf	16,765	0.64	0.64
Subbase gran matl, tp A	t	2,736	3.25	3.30
Cr stn base crse, type II	t	44	3.77	3.80
Excavation, special	cy	36,284	1.46	1.38
Embankment sprinkling	unit	77	5.25	2.00
Grd rail, stl plate beam	lf	86	4.05	4.25
Timber, misc	Mfbm	4.7	424.00	415.00
Section markers	ea	2	32.00	30.00
Tree remov, special 6-15"φ	in.φ	150	1.70	2.00
over 15"φ	in.φ	70	1.85	2.75
Sodding	sy	1,341	0.65	0.95
Topsoil	cy	454	3.40	4.05
Seeding, complete	ac	1.1	430.00	450.00
Manhole, tp A, 4'φ, w closed lid, frame tp 5	ea	7	280.00	245.00
tp 1	ea	1	250.00	245.00
Catch basin, tp A2, 4'φ, closed lid, frame tp 1	ea	1	235.00	265.00
open lid, frame tp 5	ea	32	160.00	225.00
w tp 31 frame & grate	ea	4	160.00	230.00
Storm sewer, type 2, 8"	lf	840	2.95	4.00
10"	lf	146	3.50	4.20
12"	lf	168	5.20	4.80
15"	lf	220	7.70	7.05
18"	lf	452	9.25	9.65
30"	lf	375	14.60	11.55
type 3, 36"	lf	12	21.70	25.80
type 4, 24"	lf	44	16.95	61.20
CIP (B&S) 6" cl 150	lf	74	10.50	7.10
Inlet, fill existing	ea	3	16.00	10.00
Catch basin, fill existing	ea	25	38.00	15.00
Manhole, fill existing	ea	3	38.00	15.00
adjust	ea	2	49.00	35.00
reconstruct	ea	3	95.00	70.00
Pavmt replacemt, entire	sy	46	27.00	16.90
Trench backfill	cy	1,250	4.30	3.95
Drain & sewer, plug existg, 12" or less	ea	2	49.00	35.00
Frame & grate, tp 5, with closed lid	ea	3	67.00	60.00
Conduit, asbestos cement, 4-3½", conc encased	lf	648	5.25	11.60
2-3½", conc encased	lf	592	3.68	7.40
3½"	lf	1,272	6.04	6.40
rigid steel, 2½"	lf	820	3.15	5.10
2"	lf	1,156	2.52	3.40
Handholes, city of Chicago type 11143	ea	12	630.00	550.00
Fndn for lt standard 11408A	ea	7	105.00	57.80
Cl pull box	ea	8	84.00	250.00
Conduit, rigid steel, 3"	lf	70	3.78	6.10
Handholes, city of Chicago type 11447A	ea	4	840.00	110.00
Fndn for controller	ea	5	110.25	149.00
light standard	ea	2	105.00	157.20
	ea	2	105.00	194.50
	ea	8	105.00	165.00
	ea	4	105.00	184.50

Commence: 6-2-60. Completion schedule: 9 months

Alaska Highway Prices

Selected average bid prices—State-Highway Department

Items	Unit	1959 Avg. Unit Bid Prices Anchorage	Juneau	*Fairbanks
Clear & grub	ac	$580.44	$1,522	....
Excavation, uncl.	cy	1.51	2.29	3.20
borrow, case 1	cy	0.91	....	1.78
case 2	cy	2.27	2.95	2.65
struct	cy	5.20	7.29	7.00
bridge	cy	11.24	30.14	10.91
Cr. aggr base, grad D-1	t	3.23	5.45	5.53
Asph, MC-O, prime coat	t	75.19	....	290.00
RC-3, bit surf treat	t	52.51	....	300.00
Hot bit conc pvmt	t	14.13	20.00	20.00
Struct stl piles, furn	lf	7.54e	....	8.70
drive	ea	243.20	....	295.83
Concrete, class A	cy	168.82	175.00	292.50
Steel reinf, interm gr.	lb	0.295	0.31	0.40
struct, furn, fab & erect	lb	0.60a	1.77b	0.75b
Timber, untreated	Mbm	....	869.71	545.00
creo presar	Mbm	535.63	725.71	603.88
Riprap, loose	cy	6.53	9.62	13.48
Manhole	ea	586.33	....	950.00
adjust	ea	116.67	115.00	....
Conc curb & gut, 6" dp.	lf	3.88	5.61	....
sidewalk, 4" dp	lf	7.15	9.38	....
6" dp	lf	10.13	17.50	....
Rt of way monument	ea	18.00	29.57	....
Guidepost	ea	44.38	70.86	46.67
Guardrail, beam type	lf	4.70	9.00	....

*Nome area
a A-373 b A-7 c Met type 1, asb bonded d 125-150 pene e 10BP42

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Adjustable box forms for 13'x9', 11'x9', 8'x8', and 6'6"x6'6" sewers. Also round forms, air locks, jumbos, head frames and other tunnel equipment.

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RESERVOIR LININGS REFRACTORY LININGS
PRESSURE GROUTING CONCRETE REPAIRS
SAND-BLASTING STACK & BUNKER LININGS

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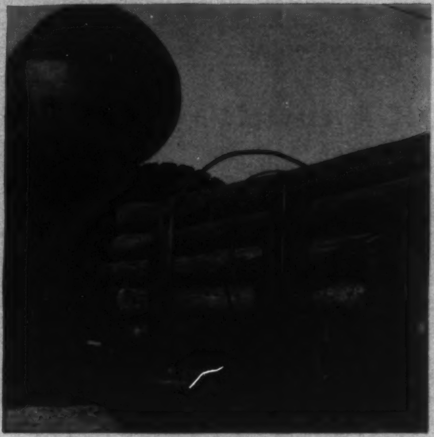
COAL TAR CREOSOTE

makes the vital difference...



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that give long life to pressure-treated wood piling, poles and posts

Coal tar creosote is the *only* wood preservative that has documented service life of 60 years in the protection of wood from decay and deterioration. • Part of the secret of this unequalled protection is the molecular complexity of creosote: it contains some 160 compounds, of which more than 50 have been proved toxic to wood-destroying insects and fungi. • Driven deep into wood fibers by pressure treatment, creosote is tenacious, resisting the leaching and evaporation to which other preservatives are subject. • Creosote makes wood a low-cost, permanent material for foundation and marine piling, highway guard rail posts and fencing, in fact, all timber construction where economy and long life are important. Your nearby Koppers representative can tell you much more about this modern wood preservative with the proved performance record.

KOPPERS TAR PRODUCTS DIVISION, PITTSBURGH 19, PA.

District Offices: BOSTON • CHICAGO • LOS ANGELES • PITTSBURGH • NEW YORK • WOODWARD, ALABAMA

Materials Prices

Monthly Market Quotations By ENR Field Reporters

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over. 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over. 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot. Hydrated finishing	Common hydrated	Pulverized
Atlanta	$186.10pe	$154.95pkbe	$309.90pe	$348.65pe	......	......	$33.20uu	$36.70uu	$36.50hh	$28.50hh	$28.50hh
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00	41.00	35.80	23.40	......
Birmingham	135.00pss	152.00pss	......	303.00p	376.00p	465.00p	27.00ff	38.00jj	38.28mm	20.87mm	26.33gmm
Boston	232.00†mm	248.00†mm	463.25†mm	556.00†mm	......	......	43.50p	58.00p	42.00§	34.00§	......
Chicago	137.00ll	149.00ll	280.00ll	......	......	......	32.00	34.00	1.00llaa	.90allaa	......
Cincinnati	179.00mmyvv	190.00jmmvv	355.00jddmm	390.00jmmvv	422.00jmmvv	500.00jmmvv	48.00jk	47.00jk	29.10jmm	29.10jmm	29.10jmm
Cleveland	205.00tt	219.00tt	......	465.00tt	......	709.00tt	43.25tt	47.25gstt	32.75ptt	28.00ptt	......
Dallas	155.00	155.00	306.00	370.50	452.25	540.00	30.00	50.00	41.80	24.58	28.80
Denver.....mm	170.00	185.00	310.00	310.00	390.00	442.00	35.00zz	54.00	50.00p	44.00p	46.00p
Detroit	257.00mm	274.00mm	514.00mm	582.00mm	767.00mm	876.00mm	53.50pmm	54.00pmm	38.00mm	30.00mm	40.00mm
Kansas City.mm	158.00	158.00	312.00	312.00	400.00	500.00	34.00	34.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	40.00uu	.....	38.00nnll	38.00nnll	39.00nnll
Minneapolis	208.00pe	225.00pe	452.00pe	225.00pwe	......	......	49.00vpe	57.50vpe	50.00bbe	40.00bbe	53.00bbde
Montreal	168.78Ruqoo	180.93auqoo	325.00auqoo	220.00qoo	400.00qoo	......	48.255ll	56.305ll	39.00	22.00	13.25
New Orleans	178.00	178.00	371.25	371.25	......	......	43.00	55.00	36.00	36.00	32.00
New York	185.00h	197.00h	294.00ch	297.00hn	......	......	46.00p	...	40.00p	38.00p	...
Philadelphia	202.10ss	215.60ss	404.20sszz	485.10ss	......	......	42.00mm	50.00mm	40.00mmp	21.50	21.50
Pittsburgh...pp	200.00t	213.00t	400.00t	453.00t	607.00t	693.00t	42.00t	40.00	30.00t	26.00t	34.00t
St. Louis	180.00mmpp	190.00pp	385.00pp	410.00ppp	459.00pp	621.50pp	44.00mmpp	45.50ppR	1.00aapp	.80aapp	1.35aapp
San Francisco	156.85**mm	177.10**mm	235.30dd**mm	159.40qqmm	......	......	43.00**mm	43.00**mm	29.24mm	29.24mm	31.74mm
Seattle	235.00pt	270.00pt	490.00pt	265.00pwt	......	......	57.00t	71.00t	52.00bbt	38.00bbt	4.50abbt
Toronto	169.00rr	185.50rr	360.00rr	281.50frr	405.00rr	......	27.00rr	65.00rr	42.00mm	38.00mm	36.50mm

*§ F.o.b. yard. ** F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *a Smooth. *b $4.50 del. *c 8 x 12 x 12 in.-6 cell. *d Pulverized hot. *e less 5% disc., 10th., *f 8 x 8 x 12. *g Lumps, $26.72. *h F.o.b. trucks, job site N.Y.C. *i 80 lb sacks. *j Truck load or over. *k $1.00 discount per M, 10 days. *l Red face. *m Per bb 180 lb. processed. *n 7⅝ x 7⅝ x 12. *o Mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra (8%). *r Not used: earthquake danger. *s 8 x 16 x 12. *t less 2% disc., cash. *u Incl. Federal tax. *v Sand lime. *w 5 x 8 x 12. *x dumped. *y Chi common. *z Pebble: 80 lb sack. *aa 50 lb sack. *bb LCL. *dd 6 x 12 x 12. *ff 80% common. *gg Smooth. *hh less 25¢ disc., cash. *ii F.o.b. plant. *jj rough: smooth; $40. *kk 3½ x 11½ x 11½. *ll less 2% disc. 10th. *mm less 2%, 10 days. *nn F.o.b., L. A. *oo less 2%, 30 days. *pp add 2% sales tax. *qq 8 x 5½ x 11½. *rr 2½% disc., 10 days. *ss 5% disc., 10 days. *tt less 2% disc., 15th. *uu less 50¢/M. 10 days *vv 4000 pcs. and over. *R revised.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600 lb. (Approx.) bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. in 100 lb. cases in oil	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$13.75ggJO	$24.00ggJ	$3.59	$3.86	$3.31	$2.90kk	$2.25kk	$2.85kk	$0.67kk	$65.35kk
Baltimore	17.50pp	24.00	3.00	4.40	3.50	3.06	3.67	4.04	.50	54.00
Birmingham	26.00†J	29.00†J	3.90J	3.40J	....	2.95†mm	2.17ii†mm	3.17ii†mm	.75ffmm	48.00emm
Boston	24.95†oomm	26.90†mmm	....	....	....	3.30q	2.45q	2.79g	.55g	58.00g
Chicago	15.25rJggpp	24.00†J	....	....	....	3.45ukk	2.50akk	3.00akk	48.00bbakk	57.70†kk
Cincinnati	15.25†JO	24.00†J	....	..		2.74mm	2.02amm	2.42amm	.53ymm	55.96Hmm
Cleveland	25.65†	26.90†	2.63ggP	2.82ssoo	3.47goo	2.74q	1.87o	2.35o	.39y	49.00gy
Dallas	22.50	23.50M	....	3.25R	....	3.00u	3.00o	3.00o	.470	66.00hh
Denver	23.85n	24.00	3.70	5.10	3.70	2.71	1.93o	2.80o	.50ff	50.00
Detroit	15.75r	24.00rr	2.70mm	3.95mm	2.70mm	2.82mm	1.81ommll	3.23ommll	.56ffmm	49.00mm
Kansas City	26.90lggoo	25.65	3.99	3.43	3.01	3.00mm	2.50omm	2.50omm	.55y	.....
Los Angeles	16.25yy	22.00	3.30n	4.50n	4.20n	3.40nkk	2.40niikk	l	.75nykk	l
Minneapolis	17.25N	21.50kk	....	....	....	2.50kk	1.95hikk	2.36hikk	.52ikk	50.00rkk
Montreal	19.45O	26.00wt	5.53Dfft	6.55aff	5.10kfft	5.40	4.65f	4.65t	1.60	4.40uu
New Orleans	23.00Jpp	24.00J	....	....	....	2.78	1.98	2.85	.680	45.50
New York	15.75ooO	29.75	....	....	....	2.79zz	2.05zzo	2.46o	.52z	49.00*
Philadelphia	16.25Om...	24.75mm	3.35mm	3.90mm	2.65Rmm	4.70	3.00	2.85	.515	50.00
Pittsburgh	21.00mqqJ	24.00J	2.20#EJ	2.25#FJ	2.25#GJ	2.90aH	2.15aH	2.15H	.56H	55.00H
St. Louis.....K	25.65†m	26.90	....	....	....	3.25iiamm	3.37hhK	2.84hhK	.48yK	62.00K
San Francisco	26.70mm	26.90mm	3.30mm	4.30mm	3.50mm	2.87mm	1.72aaiimm	2.59mm	.46jj	54.00
Seattle	13.35HO	24.00H	....	4.19ccffJ	....	3.70qccH	3.06hccH	....	.59cc	.....
Toronto	14.45	20.65	5.15J	6.18J	5.95J	3.25	2.75aar	2.75o	1.01j	56.00A

*† Delivered. * Note: Red lead in oil 80% higher than white lead in oil. ** Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e Per 108 sf roll. *f Per 432 sq ft. *g F.o.b. yard Roxbury. *h Per roll, 65 lb. *i Not carload prices, Minneapolis and vicinity. *j 45 gal containers. *k Over 80% ferric oxide. *l Not used. *m 100 lb. keg. *n F.o.b. city. *o Per 80 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *x Ready-mixed. *y 55-gal container. *z Drums. *aa 15 lb. *bb Roofers coating and cement. *cc LCL, truck delivery. *ee Asphalt pitch in 100 lb package *ff 5-gal drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per 324 sf roll. *jj Asbestos roof coating. *kk less 2% disc., 10th. *mm less 2% disc., 10 days. *oo 100 lb bbls. *pp 50 or 100 lb bags. *qq 500 lbs or more *rr F.o.b. plant, Detroit. *ss 50 lb bbls. *tt 25 lb kegs. *uu 250 lb bbls. *xx Sept.: Rolls revised to $2.75, Asph. Felt revised to 1.71. *yy Sept. revised to $12.00. * zz Sept. revised to $2.80. *A 400 lb barrels. *B ASTM Spec. D962-48. *C 90%. *D Std. black. *# Milt. spec.: E TTP27; F TTY81; G TTP31. *H less 2% disc., cash. *I Per 100 lb. *J less 1% disc., 10 days. *K add 2% sales tax. *L CL. *M 1 ton or more. *N under 500 lbs, add $1. *O 50 lb. bag.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	Gauging per ton	VERMICULITE‡ Home Insulation pellets per bag of 4 cu ft	Plaster aggregate	Concrete Aggregate Untreated	PERLITE‡ Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM Flat .100" th 36"x108" & 48"x144" per lb jt	SHEET† Corr roof .032" th 35"x12' per shu	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96"-120" per cwthh	26 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ⅜"b	½"c
Atlanta	$32.00ss	$42.00ss	$1.55ass	$1.65ass	$1.80alss	$1.65ss	$1.65ss	$0.463aoo	$27.17nY	$65.68nzz	$74.43nzz	$0.1762ss	$0.2464ss
Baltimore	24.00	35.70	0.95	1.15	1.15	1.15	1.55	0.485	0.451r	63.00	71.25	0.16	0.23
Birmingham	37.00ss	43.00ss	1.55ss	1.55ss	1.60lss	1.27ss	1.27lss	0.455M	9.62K	65.54K	73.79K	0.20ss	0.27ss
Boston	24.00	30.00	1.40	1.40	1.40	1.55ss	1.55ss	0.462	24.66pAA	64.42dd*zz	72.67dd	0.1762ss	0.2464ss
Chicago	1.45bbtt	1.45bbtt	1.55	1.60	1.60l	1.60	1.60	0.516x	32.88p	64.15ee	72.40ee	0.1723	0.2418
Cincinnati	23.85*ss	23.85*	1.75*ss	1.75*ss	1.85*ss	1.85ss	1.90ss	0.514	9.21	65.30zz	74.05zz	0.1814ss	0.2545ss
Cleveland	28.00N	45.00N	1.14ss	1.16ss	1.24lss	1.45ss	1.45ss	0.455oo	8.48	63.33oozz	71.58oozz	0.1723	0.2418
Dallas	30.65	30.65	1.05	1.21	1.37	1.21	1.32	0.463	0.461r	64.09	72.34	0.1668	0.1986
Denver	27.00	27.00	1.50	1.40	1.50	1.50ss	1.60ss	0.475	10.89	65.32gg	73.57gg	0.1772	0.2380
Detroit	28.00ss	28.00ss	1.27ss	1.31ss	1.40ss	1.45ktt	1.50ktt	0.475a	10.35a	63.00axz*	71.25axz*	0.2058	0.2887
Kansas City	30.00	35.00	1.19E	1.21E	1.29lE	1.21	....	0.463	24.66ggyyp	67.50E	76.25E	0.1404	0.1971
Los Angeles	27.00tt	28.00tt	1.25ktt	1.20ktt	1.45tt	1.11	1.11	0.515	9.77Z	65.02	73.27	0.1814	0.2545
Minneapolis	35.00F	35.00F	1.65tt	1.80F	1.95F	1.40S	1.50S	0.485	16.23	63.61GR	69.61ffG	0.1814t	0.2545
Montreal	27.60h	35.60h	1.25h	1.40h	1.60h	1.15v	1.15e	43.95AH	12.10H	65.75H	.....	0.1978	0.2089
New Orleans	34.00	48.00	1.35P	1.35P	1.45P	1.15P	1.15P	0.463	32.88	61.24Y	73.00Y	0.2058	0.2887
New York	27.00	35.00	1.40	1.35	1.40	1.35	1.40	0.485aT	0.2486aXAA	64.08a	72.33a	0.1670	0.2345
Philadelphia	26.50	31.00ss	1.40ss	1.40ss	1.55lss	1.35ss	1.35qqss	0.485	9.46	63.71	71.96	0.1814	0.2545
Pittsburgh	30.00nn	31.00nn	1.25nn	1.30nn	1.40mm	1.40nn	1.40nn	0.475	10.39	63.00	74.50pp	0.1000	0.1800
St. Louis.....uu	30.00uu	42.00uu	1.50uu	1.60uu	1.65uu	1.50uu	1.60uuY	0.475	8.77	63.30Kmmgg	69.39yuugg	0.1723fmss	0.2418fmss
San Francisco	29.50ss	30.50ss	1.38ss	1.38ss	1.50ss	1.38oss	1.58oss	0.575	10.83	65.00K	77.25K	0.1723	0.2418
Seattle	42.40nn	45.60nn	1.55nn	1.35knn	1.85lnn	1.50k	....	0.46D	10.40D	54.02D	73.27D	0.1756	0.2460
Toronto	.82	1.31	1.45	1.48	1.75	1.20Q	....	0.4295	26.00ap	73.74	86.52	0.3063	0.3418

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ⅜" O.D. *c ½" O.D. *d per sf *e 34" x 60" sheet *f per 100 ft *g 5 tons & up: cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25¢ for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 108";-10.81 lb/sh; 48" x 144"; 21.7 lb/sh *u 19.31 lb/sh *v fob plant *w 48" x 144" *x 0.11"th *z 27 gauge *aa 16M lb & up *bb Per 50 lb bag *dd add $1.00 cwt boxing *ee 4 tons & up *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 80.4-lb. per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt; 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs. *rr less 2% disc. 15 days. *ss less 2% disc. 10 days. *tt less 2% disc. 10th. *uu add 2% sales tax. *vv Type N. *xx less ½% disc. 10 days. *yy .021 ga. *zz .061" th. *A Per 100 lb. *C 15M lb. *D less ½% for cash. *E Quantity differential. *F less 5% disc. 10th. *G less ½% disc. 10th. *H Fed. tax exempt. *K less ½%, 10 days. *L 5% disc. 30 days. *M 3003; .452 for 1100. *N less 2%, 15th mo. *O less $2, cash & carry. *P less 2%, 15 days. *Q per ton. *R revised *S add .10/bag under 200 bags. *T 5000# quantity on 4000# skids. *U 30 Msf quantity; $0.245 in 10 Msf quantity. *X per sq ft. *Y Per sheet. *Z 6,000 lb or over. *AA 30,000 sf or over.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 30 Massachusetts September 1 New Hampshire

BUILDINGS—BA

▲ **Vt., South Burlington**—SCHOOL—BA 9/13—Town, Town Manager, 1000 Williston Rd., Junior-Senior High School, Dorset St. $1,640,000. Julian W. Goodrich, 930 Shelburne Rd., archt. Jennison Engineering, Inc., 95 College St., Burlington, mech. engr. CD 11/19.

▲ **Mass., Marlboro**—SCHOOL—BA 9/14—City, City Hall, high school, Bolton St. $2,500,000. Plans deposit $100. Edward Tedesco, 15 Pleasant St., Woburn, archt. CD 9/15/59.

BUILDINGS—LB & CA

▲ **Lilly Constr. Co.**, 110 Western Ave., Allston, Mass., CA Approx. **$3,000,000**, SHOPPING CENTER, west side Newburyport Turnpike, Rte. 1, SAUGUS, MASS. Milton G. Green & Allen J. Green, 1368 Beacon St., Brookline, Mass. Bids Aug. 3. CD 7/30.

▲ **Joseph Rugo, Inc.**, 115 Holmes Ave., Boston, Mass., LB **$6,940,000** (11 bidders), HIGH SCHOOL, HARTFORD, CONN. CD 8/2.

▲ **Walter Trojanowski**, 1101 E. Main St., Bridgeport, Conn., Owner Builds, **$2,000,000**, 100 HOUSES, "Aztec Acres", TRUMBULL, CONN. CD 11/7/58.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 31 New York September 1, 6 Maryland
STREETS AND ROADS
August 30 Maryland August 31 New Jersey
September 21 New York

▲ **N. Y., Mineola**—BA 9/13—Bd. Supervs. Nassau Co., Franklin Ave., sewage plant incl. sludge thickening facilities, lime handling facilities, effluent pumping station, garage and storage, Bay Park. $2,355,000. Plans deposit $50 general, $25 mechanical trades. CD 6/3/58.

BUILDINGS—BA

▲ **N. J., Franklin Twp. (Middlebush P.O.)**—HIGH SCHOOL—BA 9/8—Bd. Educ. Franklin Twp., Pine Grove Manor School, New Brunswick, high school. $2,360,000. Micklewright & Mountford, E. Stuyvesant, Trenton, N. J., archts. CD 1/20.

▲ **N. Y., Oyster Bay**—SCHOOL—BA 9/13—Bd. Educ. Union Free School Dist. No. 5, Oyster Bay, N. Y., Glen Cove High School, Dosoris Lane, Glen Cove. $2,500,000. Frederic P. Wiedersum Assoc., 65 Roosevelt Ave., Valley Stream, N. Y., archts. Foster & Cafarelli, 65 Roosevelt Ave., Valley Stream, N. Y., consult. engrs. CD 6/22.

▲ **N. Y., Port Jefferson**—HOSPITAL—BA 9/20—Diocesan Bldg. Comn., 253 Sunrise Hy., Rockville Centre, St. Charles Hospital. $3,500,000. Crow Lewis & Wick, 200 5 Ave., New York, Zone 10, archts. CD 3/4.

▲ **N. Y., Island Park**—SCHOOL—BA 10/11—Bd. Educ. Union Free School Dist. No. 31, elementary and Junior High School. $2,200,000. Plans deposit $100. Extended date. Reginald Marsh & Assoc., 101 Park Ave., New York, Zone 17, archts. CD 7/8.

HEAVY CONSTRUCTION—LB & CA

▲ **Cayuga Constr. Corp.**, 30 Vesey St., New York 7, N. Y., CA **$2,286,120**, rein.-con. pier on timber pile substructure, installation fender sys. and removal old Pier 26, for Pier 8, Brooklyn-Port Authority Piers, Contr. BP 210.001, BROOKLYN, N. Y. Port of New York Auth., 111 8 Ave., New York 11, N. Y. Bids July 26. CD 7/28, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,

Franklin Contg. Co., Rte. 46, Box 176, Little Falls, N. J., CA **$1,578,834**, grading, paving, eastbound roadway and bridge 0.689 mi. section Rte. 80, Section 2J from US Rte. 46 to Rte. 53, Denville Twp., Morris Co. Bids July 21, awarded Aug. 15. CD 7/25, under LB.

▲ **Horn Constr. Co., Inc.**, 225 W. 34 St., New York 1, N. Y., CA **$1,758,790**, Contr. PN-630.001, wharf, Berths 34, 36 & 65, PORT NEWARK, N. J. Port of New York Auth, 111 Eighth Ave., New York 11, N. Y. Bids Aug. 9. CD 8/12, under LB.

BUILDINGS—LB & CA

▲ **Holger Olsen**, 512 Newbridge Ave., East Meadow, N. Y., LB **$1,896,646** (10 bidders), general contract SENIOR HIGH SCHOOL, EAST ISLIP, N. Y. Bd. Educ., Union Free School Dist. 3, East Islip, N. Y. Bids Aug. 8. CD 7/21.

▲ **Dowfer Constr. Co.**, 1501 Broadway, New York 4, N. Y., Owner Builds, **$2,000,000**, APARTMENT, 200-206 East 15 St. and 135-145 Third Ave., New YORK, N. Y. H. I. Feldman, 415 Lexington Ave., New York 17, N. Y., archt. CD 5/18.

▲ **Mark Handler**, Ray Dr., Toms River, N. J., Owner Builds, **$4,000,000**, 412 unit GARDEN APARTMENTS, north of Garden State Parkway, EATONTOWN, N. J. Gerber & Pancani, Commerce St., Newark, N. J., archts. CD 5/3.

▲ **Stanley Development Co.**, 24 Commerce St., Newark, N. J., Owner Builds, **$1,500,000**, 54 HOUSES, off Old Deal Rd., EATONTOWN, N. J. CD 4/5.

▲ **Walter Kidde Constructors, Inc.**, 140 Cedar St., New York, N. Y., CA Est. **$4,000,000**, 14 story STUDENT ACTIVITY CENTER, HOBOKEN, N. J. Stevens Institute of Technology, 5 and Hudson Sts., Hoboken, N. J. John J. McNamara, 701 Seventh Ave., New York, N. Y., archt. Awarded Aug. 17. CD 9/18.

▲ **Arthur Venneri Co.**, 300 North Ave., Westfield, N. J., CA **$14,179,675**, general contract Proj. 2-19W, Kinney HOUSING, NEWARK, N. J. City Housing Auth., 75 Sussex St., Newark, N. J. Bids May 19. CD 5/24, under LB.

▲ **Connelly Assocs.**, Rte. 23, Franklin, N. J., Owner Builds, **$3,500,000**, 200 HOUSES, Ogden Hills, Franklin Rd., OGDENSBURG, N. J.

▲ **John McShain, Inc.**, 17th and Spring Garden Sts., Phila., Pa., LB **$2,291,000**, COURTHOUSE, DOYLESTOWN, PA. Comrs. Bucks County, Doylestown, Pa. CD 7/19.

▲ **Montgomery Constr. Co.**, 803 Main St., Grove City, Pa., CA **$1,425,000**, est. $1,600,000, GYMNASIUM and FIELD HOUSE, Slippery Rock State College, SLIPPERY ROCK, PA. General State Authority, 18th and Herr Sts., Harrisburg, Pa. Bids July 23, awarded Aug. 5. CD 7/25.

▲ **John Tester & Son, Inc.**, Clinton, Md., LB **$3,005,462** (5 bidders), West Bethesda HIGH SCHOOL, Bethesda, ROCKVILLE, MD. Montgomery County Bd. Educ., Rockville, Md. Bids Aug. 17. CD 8/10.

▲ **George A. Fuller Co.**, Munsey Bldg., Wash., D. C., CA Est. **$2,000,000**, 18 story OFFICE, 826 Connecticut Ave. N.W., WASH., D. C. William Wolf Jr. and Sr., 1001 Connecticut Ave. N. W., Wash., D. C. Vlastimil Koubek, 810 18th St. N. W., Wash., D. C., archt.

▲† **John McShain**, 1500 Arlington Ridge, Arlington, Va., LB **$13,192,000** Base Bid (9 bidders), FEDERAL OFFICE BUILDING NO. 9, New York Ave., 19th and 20th Sts., and E Sts. N.W., WASH, D. C. General Services Admin., 7th and D Sts. S.W., Wash., D. C. CD 7/13.

▲ **E. I. duPont de Nemours & Co.**, duPont and Nemours Bldg., Wilmington, Del., Owner Builds **$2,000,000**, INDUSTRIAL CHEMICALS SALES SERVICE LABORATORY, Chestnut Run near WILMINGTON, DEL.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
ENR	**Engineering News-Record**
CD	**Construction Daily**

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 30 West Virginia August 31 Virginia

▲ **S. C., Charleston**—BA 8/30—City, City Hall, 17,155 lin. ft. trunk line sewerage system, pumping stations and equipment, Wards 13 and 14, $2,500,000. CD 8/15.

BUILDINGS—BA

▲ **Ga., Cartersville**—HOSPITAL—BA 9/8—Bartow Co., Hospital Auth., Courthouse, hospital. $1,400,000. Gregson & Assocs., Mortgage Guarantee Bldg., Atlanta, archts. CD 12/9.

HEAVY CONSTRUCTION—LB & CA

▲ **Stone & Webster Eng. Co.**, 1403 Roseneath Rd., Richmond, Va., CA **$2,099,000**, gas mains, Newport News and Hampton, VIRGINIA. Virginia Electric & Power Co., 7th and Franklin Sts., Richmond, Va. CD 6/30.

▲† **J. W. Bateson Co.**, 10130 Monroe Dr., Dallas, Tex., CA **$2,414,432**, aviation facilities, FORT CAMPBELL, KY. U. S. Eng., P.O. Box 1070, Nashville 2, Tenn. Bids July 20, awarded Aug. 12. CD 7/21, under LB.

▲† **Baldwin-Lima-Hamilton Corp.**, Phila. Nat'l Bank Bldg., Phila., Pa., CA **$1,846,560**, hydraulic turbines for Melton Hills dam, Oak Ridge, TENNESSEE. Tennessee Valley Authority, New Sprankles Bldg., Knoxville, Tenn. Awarded Aug. 16. CD 7/21.

BUILDINGS—LB & CA

▲ **A. R. Abrams Constr. Co.**, P. O. Box 1969, Atlanta, Ga. CA Approx. **$1,500,000**. MOTOR HOTEL, ATLANTA, GA. Julius Epstein, 231 S. LaSalle St., Chicago, Ill. CD 6/9.

▲ **Gust K. Newburg Constr. Co.**, 99 N.E. 71st St., Miami, Fla., CA Approx. **$10,000,000**, NEWSPAPER PLANT, N.E. Bayshore Place and 13th St., MIAMI, FLA. Miami Herald Publishing Co., 200 S. Miami Ave., Miami, Fla. Grand total approx. $14,550,000. Bids July 19, awarded Aug. 8. CD 8/9, under LB;
Atlantic Foundation Co., Inc., 2905 N.E. 188th St., Ojus, Fla., CA Approx. **$750,000**, foundations newspaper plant (Miami, Fla.);
Markowitz Bros., 5600 N.E. 4 Ave., Miami, Fla., CA Approx. **$500,000** (7 bidders), plumbing, newspaper plant (Miami, Fla.);
Hill York Sales Corp., 1225 S.W. 8th St., Miami, Fla., CA Approx. **$1,300,000** (9 bidders), heating, ventilation, air conditioning, newspaper plant (Miami, Fla.);
L. K. Comstock & Co., Inc., 168 S.E. 1st St., Miami, Fla., CA Approx. **$1,250,000** (11 bidders), electrical work, newspaper plant (Miami, Fla.).
Otis Elevator Co., 1330 N.E. 1st Court, Miami, Fla., CA Approx. **$750,000** (2 bidders), 10 escalators, 7 elevators, newspaper plant (Miami, Fla.)

▲† **U. S. Eng.**, P.O. Box 59, Louisville 1, Ky., rejected bids Aug. 11 Capehart HOUSING No. 2, FORT KNOX, KY LB **$6,100,000** Sched. 1, LB **$6,410,986** Sched. 2, Will re-advertise CD 8/15, under LB.

▲ **Hargett Constr. Co.**, 113 Walton Ave., Lexington, Ky., CA **$1,594,195**, LABORATORY, Eastern State College, RICHMOND, KY. Commonwealth of Ky., Div. Purchases, Frankfort, Ky. Bids Aug. 10, awarded Aug. 12. CD 8/12, under LB.

▲ **Southern Builders**, 1717 West End Ave., Nashville, Tenn., CA **$1,750,000**, 15 story, 144,000 sq. ft OFFICE, West End Ave., NASHVILLE, TENN. Southern Builders, 1717 West End Ave., Nashville, Tenn. Donald F. Steinbaugh & Associates, 3rd Nat'l Bank, Nashville. Tenn.. archts. Awarded 8/12. CD 2/18/58.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 13 Wisconsin

BUILDINGS—BA

▲ Wis., Plymouth—SCHOOL—BA 9/22—Dpt. P. Welfare, 1 W. Wilson St., Madison, Wisconsin School for Boys. $5,000,000. Plans deposit $50. J. & G. Daverman Co., 924 Grandville St., Grand Rapids, S.W., Mich., archt. K. Yasko, state archt. CD 3/18.

HEAVY CONSTRUCTION—LB & CA

▲ George D. Hardin, Inc., 2130 S. Michigan Ave., Chicago, Ill. and Robert Gordon, Inc., 21 N. Jefferson St., Chicago, Ill., CA $1,548,248, No. 80.391-60-2, WW, incl. surf. wash piping, Central Distribution Filtration Plant, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids June 21, awarded Aug. 11. CD 6/28, under LB.

▲† Five Boro Constr. Co., 2 La Fayette St., New York 7, N. Y., LB $2,326,035, modifications Wherry Housing, Scott Air Force Base, IFB 11-623-61-1B, SCOTT AIR FORCE BASE, ILL. Base Procurement Office, Scott Air Force Base, Ill. Bids Aug. 9. CD 7/19.

BUILDINGS—LB & CA

▲ Lloyds Constr. Co., 61 W. Superior St., Chicago, Ill. CA Est. $2,500,000, 200 room Executive House MOTEL, State and Water Sts., AKRON, O. Akron-Chicago Hotel Co., c/o Leonard M. Server, 189 W. Randolph St., Chicago, Ill. CD 3/21.

▲ Belle Haven Homes, Inc., c/o Watts Realty Co., First National Tower, Akron, O., Owner Builds, $2,500,000, one hundred eighty-eight HOMES, 122 acre site, Melody Village, Franklin Twp., south of BARBERTON, O.

▲ Hunkin-Conkey Constr. Co., 1740 E. 12th St., Cleveland 14, O., CA $1,900,000, SCHOOL, CLEVELAND, O. Cleveland Institute of Music, 3411 Euclid Ave., Cleveland 15, O. Bids Apr. 26. CD 5/18, under LB.

▲ Drost-Simon Estates, Inc., 2119 S. Green Rd., Cleveland 21, O., Own Forces, $1,440,000, 60 HOMES, Yorktown Colony development, PARMA HEIGHTS, O.

▲ A. Siegler & Sons, 5117 Lee Rd., Bedford, O. Own Forces, $4,250,000, 250 HOMES, Westview Estates, Thelma Dr. and Erieview Blvd., SHEFFIELD LAKE, O. CD 12/9/55.

▲ Kay Builders, 6465 Pearl Rd., Cleveland 30, O. Own Forces, $1,900,000, 90 HOMES, Yorktown Colony development. PARMA HEIGHTS, O.

▲ S. N. Nielsen Co., 3059 Augusta Blvd., Chicago, Ill. CA $2,000,000, 6 story, bsmnt., DIAL EXCHANGE, corner Dearborn and Illinois Sts., CHICAGO, ILL. Illinois Bell Telephone Co., 212 W. Washington St., Chicago 6, Ill. Holabird & Root, 180 W. Wabash St., Chicago 1, Ill., archts. Bids July 12, awarded Aug. 4. CD 7/6.

▲ Kelso Constr. Co., Inc. & Lundsberg Co., 1710 W. Lawrence Ave., Chicago 40, Ill., CA foundations and site work contract, 1 story, 180,000 sq. ft. corrugated box FACTORY, Grand Ave., east of Skokie Hy., GURNEE, ILL. Hoerner Boxes, Inc., Keokuk, Iowa, Total est. $2,500,000-$3,000,000. CD 6/30.
Wendnagel & Co., Inc., 600 W. Cermak Rd., Chicago 16, Ill., CA, structural steel contract, for FACTORY, (Gurnee, Ill.);

Inland Steel Products Co., P. O. Box 393, Milwaukee, Wis., CA, roof deck, wall panels contract for FACTORY, (Gurnee, Ill.)

▲ J. C. Harris & Sons, Inc., 5400 Elston Ave., Chicago, Ill., CA $4,000,000, 475,000 sq. ft. CHAIN STORE WAREHOUSE, distribution center, freezer space, Proviso Industrial Park, NORTHLAKE, ILL. The Kroger Co., 1041 Vine St., Cincinnati, O. Bids May 17. CD 5/31, under LB.

▲ H. Schmitt & Son, 930 E. Burleigh St., Milwaukee, Wis. CA Est. $1,981,639, general contract SEMINARY, RIVER HILLS, MILWAUKEE, P. O. WIS. Milwaukee Downer Seminary, 2513 E. Hartford Ave., Milwaukee, Wis. Bids June 7. CD 5/17.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 22 South Dakota

BUILDINGS—BA

▲ Tex., El Paso—HOUSING—BA 9/1—U. S. Eng., P.O. Box 1538, Albuquerque, N. M., 510 Capehart housing units, Inv. No. ENG-29-005-61-13, Fort Bliss, $8,000,000. CD 6/17.

▲ Tex., Dallas—HOSPITAL—BA 9/14—St. Paul's Hospital, 3121 Bryan St., (selected list of bidders), 10 story, 412,000 sq. ft., air-conditioned, concrete frame hospital, $10,000,000. Extended date. Roscoe DeWitt, 2025 Cedar Springs Rd., archts. Thompson & Abney, 2023 Cedar Springs Rd., and Leo L. Landauer & Associates, 4801 Lemmon Ave., engrs. CD 8/2.

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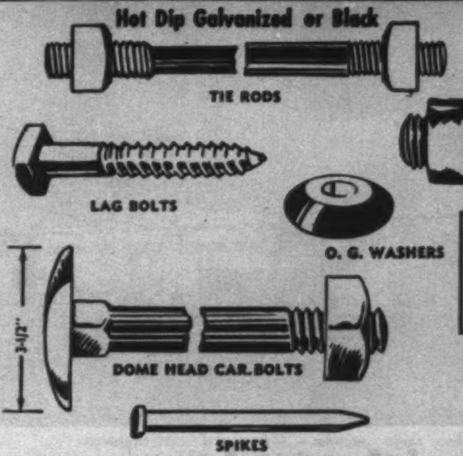

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▲ **Tex., El Paso**—BANK-OFFICE—BA 9/15—El Paso National Bank, El Paso, 18 story, bsmnt., bank-office, incl. parking garage, $8,000,000. Plans deposit $100. Carroll & Daeuble & Associates, 1001 E. Yandell St., and Geo. L. Dahl, 2101 N. St. Paul's St., Dallas, archts. CD 3/25.

▲ **Minn., Brooklyn Center** — SHOPPING CENTER — BA 9/20—Dayton's, 7 St. and Nicollet Ave., Minneapolis, Brookdale Shopping Center, Hy. 100, Shingle Creek, 59 Ave. N. and Osseo Rd. Over $3,000,000. V. Gruen & Assocs., 7 St. and Nicollet Ave., Minneapolis, archts. CD 4/9/59.

HEAVY CONSTRUCTION—LB & CA

▲ **SOUTH DAKOTA**—State Dpt. Hys., Highway Bldg., Pierre, Bids opened 8/11,

S. D.—**Western Contg. Corp.**, 400 Benson Bldg., Sioux City 15, Iowa, LB **$492,399**, (3 bidders), grading, c. conc. pavement, 0.713 mi., US 77, 33rd St. in Sioux Falls; south, F 003-3(1), Minnehaha Co.;

S. D.—**J. H. Beckman Constr. Co.**, 3631 W. 14th St., P. O. Box 846, Sioux Falls, S. D., LB **$1,970,391**, (4 bidders), grading, surf., 3.787 mi., I 229, I 90 to E. 10th St., Sioux Falls, I 229-2(7)82, Minnehaha Co.;

S. D.—**R. S. Krage Co.**, 415 Bluff St., P. O. Box 805, Sioux City, Iowa, LB **$452,496**, (6 bidders), grading, subbase, 18.082 mi. US 18, US 281 to SD 37, F 016-1, F 016-2, and F 016-3, Charles Mix, Douglas, and Hutchinson Counties;

S. D.—**Johnson Bros.**, 342 S. Harrison St., Pierre, S. D., LB **$539,077**, (6 bidders), grading, sub-base, 15.023 mi., SD 24, and SD 73, Billsburg; west, F 028-3(3), Haakon Co.;

S. D.—**H. G. Seeley Constr. Corp.**, DeSmet, S. D., LB **$697,222**, (7 bidders), grading, 10.022 mi., I 29, 2 mi. south of Beresford; north, I 29-2(5)47 and I 29-I(8)45, Lincoln and Union Counties. CD 7/7.

▲ **Rocco Ferrera & Co.**, P.O. Box 4826, Redford Station, Detroit 19, Mich., CA **$2,473,698**, est. $2,471,782, Minne Lusas Relief Sewer No. 2178, OMAHA, NEB. City of Omaha, Sewer Engr. Sec., City Hall, Omaha, Neb. Bids July 19, awarded Aug. 10. CD 7/28, under LB.

▲ **KANSAS**—State Hy. Comn., Abilene,

Kan.—**J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Kan., CA **$1,674,473**, concrete pavement 9.057 mi. Proj. 70-21 I 70-4(6) 265, Dickinson Co.;

Kan.—**Peter Kiewit Sons' Co.**, Box 3008, Southeast Station, Wichita 17, Kan., CA **$210,110** aggreg. asphalt base course 6.435 mi. Proj. 77-64 F 055-3 (18) Pts. I&II, Morris Co. Bids Aug. 2. CD 7/13.

▲ **TEXAS**—State Hy. Dept., Austin,

Tex.—**John G. Holland Constr. Co. & Holland Engr. Corp.**, P.O. Box 20096, Houston, Tex., CA **$2,650,578**, 0.741 mi. grading, structures, st. sewers, base and surf., sanitary sewers, Hgy. I 610, Proj. I 610-7(70), Harris Co.;

Tex.—**Cage Bros.**, 6959 San Pedro, San Antonio, Tex., CA **$2,681,627**, grading, structures, Hy. L 10 and Loop 251, Proj. I 10-8(4) etc., Jefferson Co.;

Tex.—**Bridge Builders, Inc., & Spencer Constr. Co., Inc.**, P.O. Box 6046, Dallas, Tex., CA **$1,951,357**, grading, drainage, structures, bridge 1.002 mi. Hy. US 287, Proj. F 385(24), FG 385 (25), Tarrant Co.;

Tex.—**Texas Bitulithic Co.**, P.O. Box 10365, Dallas, Tex., CA **$1,208,932**, grading, structures, storm sewers, c. conc. pavt. 0.981 mi., I 35-E, Proj. I 35-E E-6(43), Dallas Co.;

Tex.—**The Jarbet Co.**, P.O. Box 606, San Antonio, Tex., CA **$1,226,607**, flex. base, b. conc. pavt., 9.936 mi., US 59, Proj. F 271(7), Angelina Co.;

Tex.—**Dean Word**, P.O. Box 330, New Braunfels, Tex., CA **$516,553**, grading, structures, flex. base, surf., 8.064 mi. F.M. 1604, Proj. S 2359(1), Bexar Co. Grand total $10,335,654. Bids July 19, awarded July 25. CD 7/25.

▲ **TEXAS**—State Highway Comn., Austin, Bids opened 8/16,

Tex.—**Heldenfels Bros.**, P.O. Box 1917, Corpus Christi, Tex., LB **$1,117,362**, grading, structures, fl. base, asphalt surf., 25.815 mi. Hwy. St. 35, Proj. F817(4), etc., Refugio-Aransas Co.; LB **$359,738**, grading, structures, fl. base and surf. tr., 7.275 mi., Proj. F250(10), Hidalgo Co.;

Tex.—**Killian-House Co.**, 4600 Broadway, San Antonio, Tex., LB **$2,072,696**, gr., strs., fl. base, conc. pvt. and A.C. pvt., 2.628 mi. Hwy. I.H. 35, Proj. I 35-2(21), Bexar Co.;

Tex.—**McMillin-Burkett Constr. Co.**, P.O. Box 1161, Texarkana, Tex., LB **$519,488**, gr., strs., and A.C. pvt., 4.841 mi. Hwy. St. 8, Proj. S 2325(3), Bowie Co.;

Tex.—**R. C. Buckner**, P.O. Box 609, Jacksonville, Tex., LB **$823,998**, grading and structures, 8.179 mi. Hwy. I 20, Proj. I 20-6(21) 521, Van Zandt Co.;

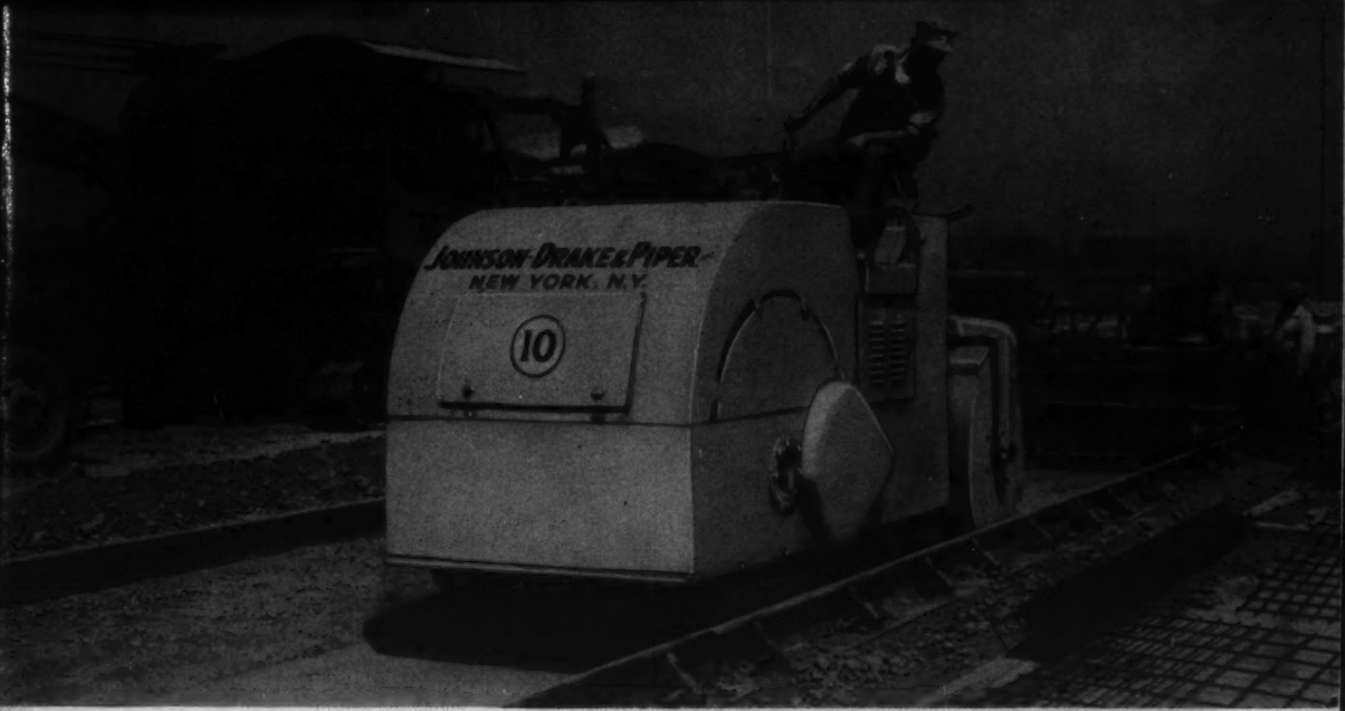
Tex.—**Austin Bridge Co. & Austin Road Co.**, P.O. Box 1590, Dallas, Tex., LB **$4,290,707**, gr., strs. and conc. pvt., 3.567 mi., Hwy. I.H. 610, Proj. U 1057 (12), 1610-7(26), Harris Co. CD 7/25 and 7/29.

▲† **Tecon Corp.**, 202 Davis Bldg., Dallas 2, Tex., and **Green Constr. Co.**, 321 Locust St., Des Moines, Iowa, CA **$6,326,679**, completion embankment, spillway, service bridge, Canyon Dam, BRAUNFELS, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth Dist., Fort Worth, Tex. CD 7/28, under LB.

BUILDINGS—LB & CA

▲ **Watson Constr. Co.**, 1409 Willow St., Minneapolis, Minn., LB **$1,594,600**, (8 bidders), four PATIENT

(Continued on page 74)



MINNEAPOLIS, MINNESOTA — Johnson, Drake and Piper, general contractor in heavy construction work, use Huber-Warco equipment on many of their projects. This Huber-Warco 8-12 ton tandem roller is compacting base inside concrete forms on one of the company's turnpike projects in the Buffalo, New York area.

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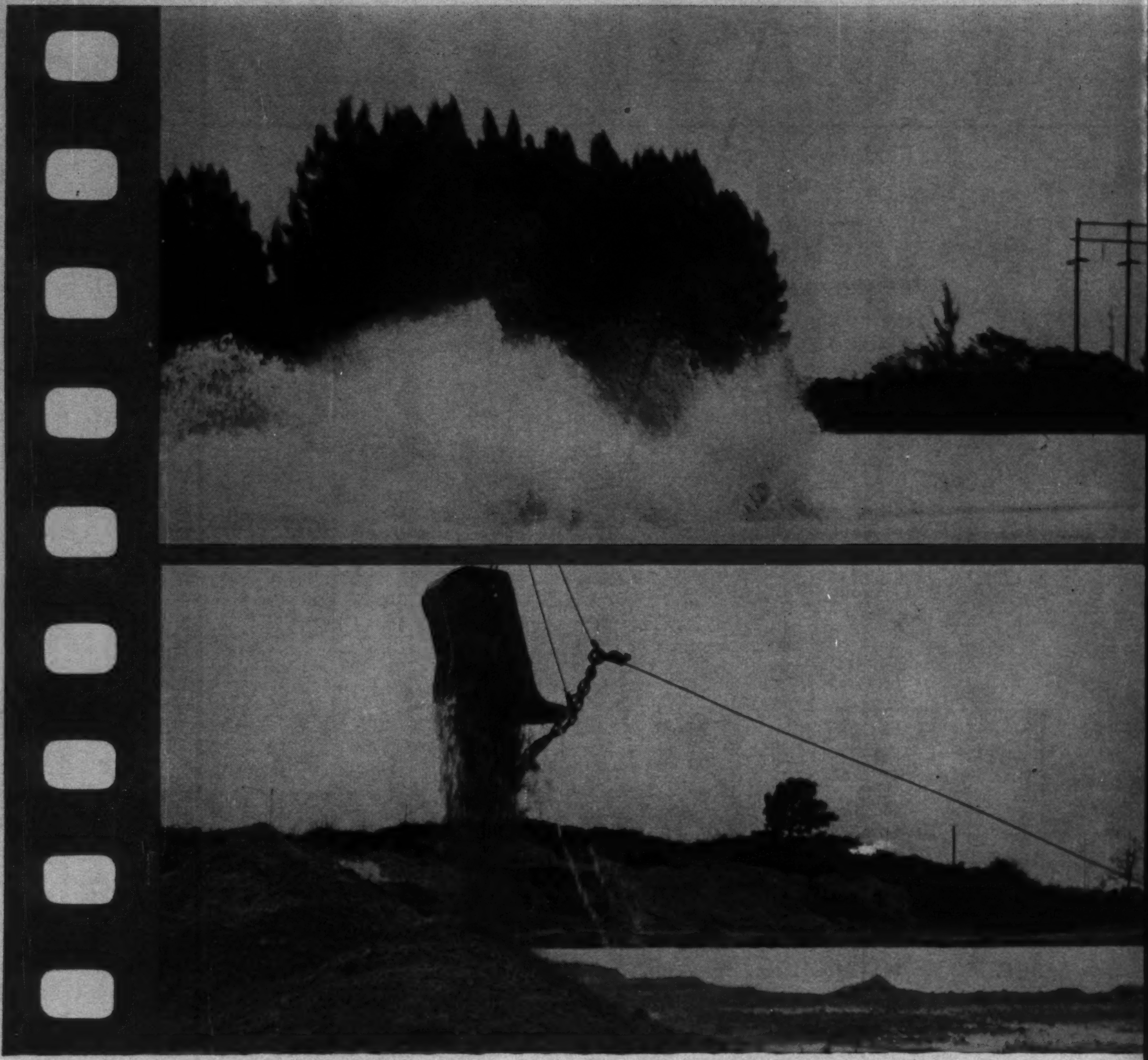
HUBER-WARCO COMPANY Marion, Ohio, U.S.A.



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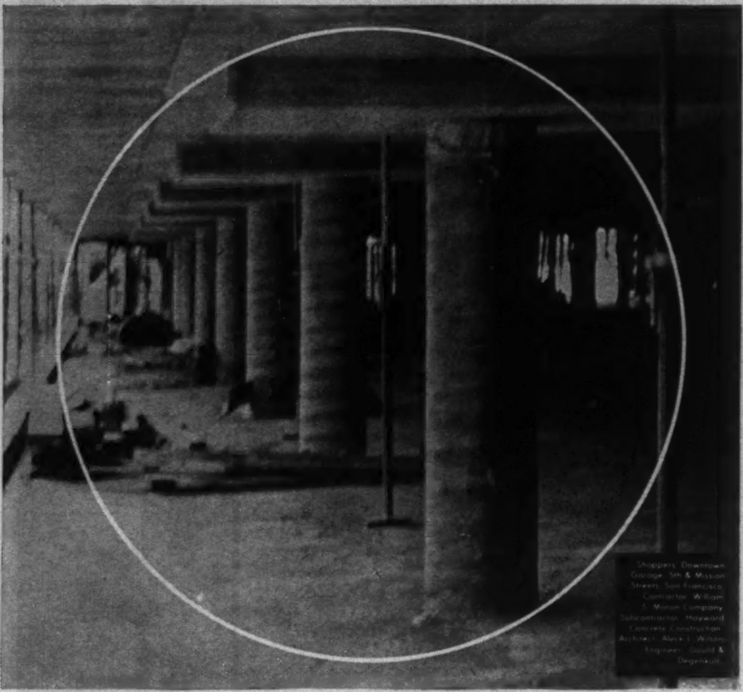
Shoppers' Downtown Garage, 5th & Mission Streets, San Francisco. Contractor: William S. Moran Company. Subcontractor: Hayward Concrete Construction. Architect: Aleck L. Wilson. Engineer: Gould & Degenkolb.

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(Continued from page 70)

BLDGS., State School and Hospital, BRAINERD, MINN. State Dpt. Admin., 19 State Capitol, St. Paul, Minn. Bids Aug. 11. CD 7/21.

▲ **Cranbrook Corp.**, 4000 Bebeney, Houston, Tex., Owner Builds, Approx. **$1,800,000**, 175-HOUSE subdivision, west of U. S. Hy. 67-70, "Brookwood Addition" LITTLE ROCK, ARK.

▲ **Missouri Valley Constructors**, 1932 Harrison St., Amarillo, Tex., CA **$14,000,000**, POWER PLANT addn., AMARILLO, TEX. Southwestern Public Service Co., 3rd and Polk Sts., Amarillo, Tex.

▲ **C. F. Binner & Son**, Waco, Tex., CA **$2,028,000**, Phase 1, SHOPPING CENTER, drainage, site work, 5,000 capacity auto center pavement, AUSTIN, TEX. Capitol Plaza Shopping Center, 802 Capitol Nat'l Bank Bldg., Austin, Tex. CD 4/13.

▲ **Cantrell & McMillan Builders, Inc.**, 5348 Inker St., Houston, Tex., Owner Builds, **$6,200,000**, 200 DWELLINGS, Rustling Pine, HOUSTON, TEX. CD 5/19.

▲ **Bert R. Coats, Contractor-Developer**, 4010 Bluebonnet St., Owner Builds, **$2,696,250**, 71 masonry DWELLINGS, Frostwood Subdivision, HOUSTON, TEX.

▲ **Henry C. Laughlin**, 9539 Edell St., Houston, Tex., CA Est approx **$2,115,000** SHOPPING CENTER utilities, earthwork, paving, HOUSTON, TEX. W. Floyd Clark & Associates, 8721 Lanell Lane, Houston, Tex. J. Hale Smyth, 3827 Richmond Ave., Houston, Tex., engr. CD 8/16.

▲ **H. A. Lott, Inc.**, P. O. Box 25005, Houston, Tex, LB **$1,930,600**, (11 bidders), CHURCH, HOUSTON, TEX. Second Baptist Church, 2424 Milam St., Houston, Tex. Lockwood, Andrews & Newman, 1010 Waugh St., Houston, Tex., engrs. CD 7/8.

▲ **McMillan Home Buliders**, Glenn McMillan, 5331 Brookmeade St., Houston, Tex., Owner Builds, **$2,194,725**, 62 masonry DWELLINGS, "Wilchester" subdivision. HOUSTON, TEX. CD 7/1.

▲ **Fluor Corp., Ltd.**, 3137 Old Spanish Trail, Houston, Tex., CA Est. **$4,000,000**, ETHLENE PLANT; CA **$3,750,000**, POLYPROPYLENE PLANT, ODESSA, TEX. El Paso Natural Gas Products Co., (Subsidiary of El Paso Natural Gas Co.), El Paso, Tex., and Rexall Chemical Co., (Div. of Rexall Drug & Chemical Co.), 8480 Beverly, Los Angeles, Calif. CD 5/17.

▲ **Edward J. Mankin, Inc.**, 3208 Carlisle Blvd., Albuquerque, N. M., Owner Builds. **$7,000,000** 458 HOUSES, Foothills Estates, ALBUQUERQUE, N. M.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 13 Idaho	September 14, 27, 28 California

STREETS AND ROADS

September 6 Utah	September 7 Washington
September 13 Idaho	September 14, 15 California

▲ **Hawaii, Honolulu**—BA 9/1—City and Honolulu County, Punchbowl and King Sts., Job No. 24-60, constr. roads, Improvement District No. 135, Kapalama $1,740,000. Plans deposit $50. CD 7/21.

▲† **Washington**—BA 9/30—U. S. Eng., City-County Airport, Walla Walla, Part II, dredging navigation channel, Snake River, Ice Harbor Dam, Walla Walla and Franklyn Counties, CIVENG-45-164-61-5, $1,500,000. Plans deposit $1. CD 9/29.

BUILDINGS—BA

▲† **Calif., San Francisco** — COURT HOUSE, etc. — BA 9/29—General Services Admin., P. Bldgs. Service, Business Service Center, 49 Fourth St., 20 story, subbsmnt., bsmnt., penthouse, concrete fdns., concrete and structural steel framing, composition roofing, drainage and waterproofing court house and federal office, Proj. 04903. Plans deposit $150. Blanchard & Maher, Albert F. Roller, Stone, Mulloy, Marracini & Patterson, John Carl Warnecke, 111 New Montgomery St., archts. CD 2/10/58, under Commercial Buildings.

▲ **Calif., Los Angeles**—MEN'S DETENTION JAIL—BA 12/21—Bd. Supervs. Los Angeles Co., Hall of Records, county men's detention jail. $16,309,151. Albert C. Martin & Assoc., 333 S. Beaudry St.; Charles Luckman & Assoc., 8534 Sunset Blvd.; Kenneth S. Wing, 30 Linden Ave., Long Beach, Calif. and William Allen, 6112 Wilshire Blvd., Los Angeles, Calif., archts. CD 6/13.

HEAVY CONSTRUCTION—LB & CA

▲† **Adak P. O. L. Contractors**, P. O. Box 1039, Anchorage, Alaska, CA **$1,987,000**, 42x116 ft. steel frame bldg., 34x52 ft. rein.-con. bldg., 17x20 ft. steel frame bldg., grading, roads, steel antennas etc. Communication Facilities, Spec. 28318/60, ADAK, ALASKA. P. Wks. Officer, 13 Naval Dist., Naval Station, Seattle, Wash. Bids May 5, CD 6/11, under LB.

▲ **WASHINGTON**—State Toll Bridge Auth., Transportation Bldg., Olympia,

G. F. Atkinson Co., 10 W. Orange Ave., South San Francisco, Calif., CA **$10,969,596**, floating portion of second Lake Washington Bridge at Seattle, King Co. CD 8/6/59.

▲† **J. A. Jones Constr. Co.**, 1117 2nd Ave. Bldg., Seattle, Wash., LB **$4,450,000**, est. $3,742,500, (5 bidders), dredging navigation channel, Lower Snake River, Ice Harbor Dam, CIVENG-45-164-61-3, WASHINGTON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Aug. 17. CD 7/28.

▲† **Gibbons & Reed Co.**, 825 W. 9 North St., Salt Lake City, Utah. CA **$6,215,577**, est. $7,297,246, earthfill Whiskeytown Dam, Trinity River Div., Central Valley Proj. DC 5350, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lewiston, Calif. Bids July 21. CD 7/26, under LB.

▲ **Barrett Constr. Co.**, 1800 Evans Ave., San Francisco, Calif., LB **$5,300,000**, main terminal bldg. with control tower for Oakland International Airport, OAKLAND, CALIF. Oakland Port Comn., Grove St. Pier, Oakland, Calif. Bids Aug. 15. CD 7/28.

BUILDINGS—LB & CA

▲† **C. F. Braun & Co.**, 1000 S. Fremont Ave., Alhambra, Calif., CA Est. **$6,000,000**, experimental organic cooled REACTOR, National Reactor Testing Station, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, Idaho Falls, Idaho. The Fluor Corp., Ltd., 2500 Atlantic St., Los Angeles, Calif., engrs. Phillips Petroleum Co., Braniff Bldg., Oklahoma City, Okla., will operate. CD 12/23.

▲† **Alcon Co.**, Sacramento, Calif., LB **$7,698,000**. Base Bid, (6 bidders), 500 unit CAPEHEART HOUSING, No. 3, ENG-60-38, FORT ORD, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Aug. 11. CD 7/26.

▲ **B & R Constr. Co.**, 110 Market St., San Francisco, Calif., CA **$2,710,500**, Highland HIGH SCHOOL, HAYWARD, CALIF. Hayward Union High School Dist., 305 Elmhurst, Hayward, Calif. Bids July 6. CD 7/15, under LB.

▲ **Williams & Burrows, Inc. and O. E. Anderson Co.**, 500 Harbor Blvd., Belmont, Calif., CA **$1,879,576**, Proj. II, 8 BUILDINGS, Bldgs. B. D. I. L, Football Field and Bleachers, Foothill College, LOS ALTOS, CALIF. Foothill Junior College Dist. of Santa Clara Co., 150 El Camino Real, Mountain View, Calif. Bids June 27. CD 8/8, under LB.

▲ **P. I. Steel Corp., sub. Stanray Corp.**, 200 South Michigan St., Chicago, Ill., CA Est. **$2,000,000**, fabricating, erecting structural steel for Barrington Plaza APARTMENT, LOS ANGELES, CALIF. B. C. Deane Co., c/o Daniel, Mann, Johnson & Mendenhall, archts.-engrs., 3325 Wilshire Blvd., Los Angeles, Calif. CD 6/25/58.

▲ **Fred S. Macomber, Inc.**, 4704 E. McKinley Ave., Fresno 2, Calif., CA **$1,648,058**, general contract, 1 and 2 floors, partial bsmnt., brick, concrete, steel frame GYMNASIUM, swimming pools, etc., San Fernando State College, W. O. 4160GC-44 and 4304GC-47, NORTHRIDGE, CALIF. State Dpt. P. Wks., 1120 N St., Sacramento, Calif. Bids July 20, awarded Aug. 11. CD 7/27, under LB;
E. O. Nay Co., Inc., 2014 E. Colorado Blvd., Pasadena, Calif., CA **$520,600**, mechanical work gymnasium, swimming pools, etc. San Fernando State College (Northridge, Calif.).

▲ **James R. Roberts Co.**, 4444 Piedmont St., Oakland, Calif., CA **$1,924,200**, 4 story, 100-bed 62,000 sq. ft., rein.-con. San Leandro MEMORIAL HOSPITAL, MacArthur Blvd. and Benedict Dr., SAN LEANDRO, CALIF. East Bay Lutheran Hospital Assn., 1332 E. 14 St., San Leandro, Calif. Bids Apr. 22. CD 5/3, under LB.

▲ **C. L. Peck, General Contractor**, 816 W. Fifth St., Los Angeles, Calif., CA **$1,828,787**, Valley Presbyterian HOSPITAL addn., VAN NUYS, CALIF. Valley Presbyterian Hospital, 15107 Van Owen St., Van Nuys, Calif. Bids July 19. CD 7/29, under LB.

▲† **Fisher Constr. Co.**, 2827 Kaihikapu, Honolulu, Hawaii, CA **$2,000,000**, ELECTRONICS DIVISION, Island of Hawaii, HAWAII. U. S. Coast Guard, 14th Dist., Seaboard Bldg., Honolulu, Hawaii.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
September 22 British Columbia

STREETS AND ROADS
September 14 Ontario

BUILDINGS—BA

▲ **Ont., Toronto—HOUSING—BA 8/30—**Municipality of Metropolitan Toronto, 67 Adelaide St. E., nine bldgs., 201 apartments, low rent housing, Haldon Ave. $1,550,000. Plans deposit $100. Jackson Ypes & Assocs., 24 Northtown Shopping Plaza, Willowdale, archts.-engrs. CD 7/16/59.

HEAVY CONSTRUCTION—LB & CA

▲ **Perini (Quebec), Inc.**, 550 Sherbrooke St. W., Montreal, Que., CA Est. **$10,000,000**, powerplant, penstocks, intake structures, Squaw Rapids Hydro-Electric Station, SASKATCHEWAN. Saskatchewan Power Corp., 1739 Cornwall St., Regina, Sask. Bids Aug. 2. CD 7/29.

BUILDINGS—LB & CA

▲ **A. V. Carlson Ltd.**, 10550 109th St., Edmonton, CA Est. **$1,000,000**, 7 story, rein.-con., masonry APARTMENT, 12207 Jasper Ave., EDMONTON, ALTA. Eureka Development Ltd., c/o Rule, Wynn & Rule, archts., 11422 Jasper Ave., Edmonton, Alta.

▲ **Burns & Dutton Concrete Constr. Co., Ltd.**, 1250 Vulcan Way, Richmond, B. C., CA **$2,500,000**, steel, concrete, brick SHOPPING CENTRE, ROWELL RIVERS,

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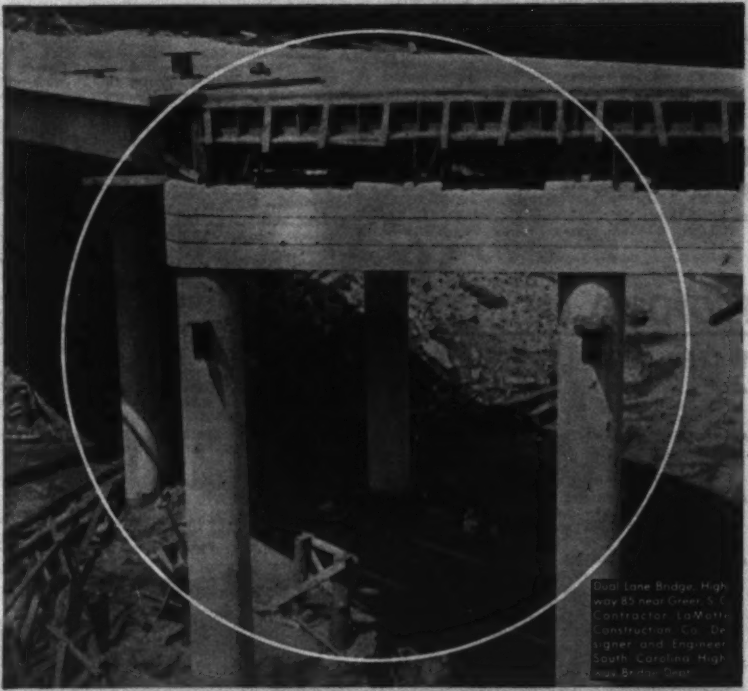
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B. C. J. Aceman & S. H. Rosen, 630 Rogers Bldg., Vancouver, B. C. Awarded Aug. 8. CD 8/4, under LB.

▲ Ball Bros., Ltd., 824 Victoria St. N, Kitchener, Ont., LB $4,455,216, (6 bidders), first phase, 10 story, penthouse 52x190 ft. rein.-con., brick, block HOSPITAL, KITCHENER, ONT. St. Marys Hospital, Queensmount Crescent, Kitchener, Ont. Bids July 27. CD 7/5.

▲ Ellis-Don Ltd., Box 852, London, Ont., CA $3,161,-000, 5 story, 128x230 ft., structural steel frame POSTAL TERMINAL, concrete fdn., Clarence and York Sts., LONDON, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 6, awarded Aug. 9. CD 7/15.

▲ Stewart Hinan Corp., Ltd., Hiscott St., Box 266, St. Catharines, Ont., CA Est. $6,000,000 (11 bidders), 1 story, 116,000 sq. ft. glass fabrication PLANT, Crowland Twp., 15 mi. southwest of Niagara Falls, NIAGARA FALLS, ONT. The Ford Motor Co. of Canada Ltd., 120 Bloor St. E., Toronto, Ont. Bids July 29, awarded Aug. 9. CD 7/26.

FOREIGN

BUILDINGS—LB & CA

▲ Turriff Constr. Corp., Warwick, England, CA Est. $3,-000,000, DRAGON Nuclear Reactor Proj., Winfrith Heath, DORSET, ENGLAND. United Kingdom Atomic Energy Comn., Dorset, England.

PROPOSED PROJECTS

WATER SUPPLY

▲ Colo., Westminster—City, City Hall, (P-Colo-3020) water facilities, $2,472,000. Phillips, Carter, Osborn, Inc., 831 14th St., Denver, consult. engr.

▲ Iowa, Ottumwa—Waterworks Bd. Trustees, City Hall, filtration plant, office, booster station, $1,750,000. Burns & McDonnell Engr. Co., P. O. Box 7088, 4600 E. 63 Trafficway, Kansas City, Mo., engr. CD 1/22.

▲ Tex., Austin—City voted bonds Aug. 6, water supply, $7,150,000; water mains $4,500,000; waterworks rehabilitation, $500,000; elevated water storage, $400,-000. CD 7/15.

▲ Tex., Wichita Falls—Halsell Water Supply Dist., c/o Homer A. Hunter Associates, engrs., 3708 Abrams Rd., Dallas, reservoir or dam, $4,500,000; water main and distr. lines, $3,000,000; water pump station, $750,000; WW system exten., improv., $3,650,-000; water training plant, $650,000; water storage tank, $350,000.

SEWERS, WASTE DISPOSAL

▲ Idaho, Twin Falls, City, City Hall, voted bonds Aug. 2, sewage treatment plant, trunk lines and lateral connection, $1,700,000. CD 7/12.

▲ Mo., St. Louis County—Metropolitan St. Louis Sewer Dist., 901 Washington Ave., St. Louis, Zone 1, $10,986,000 bond election Aug. 30, major trunk sewerage sys. and sewage treatment facilities, involving 8 to 10 mi. sewers, etc. Coldwater Creek Watershed. Horner & Shifrin, 1221 Locust St., St. Louis 3, Mo. and Alvord, Burdick & Howsen, 20 N. Wacker Dr., Chicago, Ill., engrs. for preliminary studies. CD 5/26.

▲ Mo., St. Louis County—Metropolitan St. Louis Sewer Dist., 901 Washington Ave., St. Louis, Zone 1, $4,-750,000 bond election Aug. 30, sanitary trunk sewers, Gravois Creek Subdistrict, Gravois Creek Watershed, southern part of county. CD 11/28/58.

▲ N. Y., Chittenango—Village, Village Hall, sewerage sys. and treatment plant. $1,339,577. Roswell W. Cull & Assoc., Chittenango, engrs. CD 8/3.

▲ Ore., Springfield—City of Springfield, City Hall, sanitary sewerage system. $2,070,000. L. T. Elson, city engr. CD 8/3.

▲ Tex., Austin—City, City Hall, voted bonds Aug. 6, sewage disposal $750,000; sanitary sewer lines, $6,125,000; storm sewers $2,500,000; sanitary sewers, $550,000; sanitary sewer lift stations, $275,-000. CD 7/15.

▲ Tex., Corpus Christi—City, City Hall, McArdle Sanitary Sewer Line, $1,100,000; Oso Sanitary Sewer Line, $250,000. Lockwood, Andrews & Newman, 1010 Waugh St., Houston, Tex., and Corpus Christi, consult. engrs. Bids late 1960. CD 9/9.

▲ Va., Abingdon—Abingdon Town Council, sewage treatment plant, $1,000,000. Wiedeman & Singleton, 760 W. Peachtree St. N.W., Atlanta, Ga., consult. engrs. CD 6/20.

▲ W. Va., South Charleston—City, City Hall, sewage treatment plant, and system, $2,524,632. CD 8/16/54.

BRIDGES

▲ Va., Alexandria—City, City Hall, Monroe Ave. Bridge, $1,375,000; grade separations between Rte. 1 and Prince, Cameron, Pendleton and Franklin Sts. $900,-000.

STREETS AND ROADS

▲ Tex., Austin—City, City Hall, voted bonds Aug. 6, street paving, $6,275,000; street imprvs., $400,000. CD 7/14.

EARTHWORK, WATERWAYS

▲ Tex., Austin—City voted bonds Aug. 6, drainage, $1,000,000. CD 7/14.

AIRPORTS

▲† Mo., St. Peters—AIR ROUTE TRAFFIC CONTROL CENTER—Federal Aviation Agency, 3 Regional Office, Kansas City, Mo., 1 story, 47,000 sq. ft. air route traffic control center. $1,000,000. Constr. 1961.

▲ W. Va., Morgantown—RUNWAY—City, City Hall, runways extension, imprvs., municipal airport, $1,-342,544.

UNCLASSIFIED

▲ Alaska — DISTRIBUTION LINE — Matanuska Elec. Assn., distr. lines, tie line and substation to serve 408 new rural consumers, Palmer. $1,212,000. CD 7/14/58.

▲ Texas—GAS LINES GATHERING SYSTEM, etc.—Border Gas Transmission Corp., c/o Nick Saigh, Majestic Bld., San Antonio, gas lines gathering system, Webb, Zapata, Starr, Jim Hogg, Brooks and Kennedy, $5,000,000; compressor station, $450,000. N. A. Saigh Co., Majestic Bld., San Antonio, consult. engr.

▲ Texas—GAS SYSTEM—Rio Gas Gathering Co., c/o N. A. Saigh Co., engr., Majestic Bld., San Antonio, up to 15 in. gas gathering system, Dimmit, Zavala, Maverick, LaSalla Counties, $5,200,000.

▲ Tex., Austin—TRANSMISSION LINES—City, City Hall, voted bonds Aug. 6, electric transmission lines, $4,000,000; transformers, distribution circuits, services, meters, related work, $2,000,000. CD 7/15.

▲ Tex., Houston—DOCK—Sheffield Div. of Armco Steel Corp., Industrial Rd., 1,080 ft. (open type concrete dock), bulk cargo dock. $2,200,000.

▲ Wash., Yakima—STADIUM, etc.—School Dist. No. 7, 104 N. 4 Ave., stadium, auditorium and athletic field for six high schools, $5,600,000.

PUBLIC BUILDINGS

▲ Ark., Fort Smith—SCHOOL—Fort Smith School Dist., 400 N. 15 Fort Smith, bond election Dec. 6, schools. $2,550,000.

▲ Calif., Del Paso Heights—SCHOOL—Grant Union High School Dist., c/o Supt., 1400 Grant Ave., Del Paso Heights, plans by Starks, Jozens & Nacht, 5701 Freeport Blvd., Sacramento, 140,000 sq. ft., steel frame, tiltup concrete brick veneer, Senior High School, Rio Linda. $2,480,000.

▲ Conn., Waterbury—SCHOOL—Town, Town Hall, 271 E. Main St., plans by Louis R. Fucito, 37 Hillside

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Ave., high school, Highland Ave. $1,000,000. CD 3/24/59.

▲ **Fla., Bradenton** — HOSPITAL — Bd. Comrs. Manatee Co., Courthouse, plans by Pullara & Watson, archts.-engrs., 2910 Grand Central Ave., Tampa, Manatee Memorial Hospital addns. **$1,200,000.** CD 4/13/59.

▲ **Ill., Centralia**—SCHOOL—Illinois State Welfare Dpt., Admin. Serv., State Office Bldg., Springfield, Illinois School for Mentally Retarded, incl. walks, drives, drainage, water, sewage facilities, **$11,723,000.**

▲ **Ill., Chicago**—HOUSING—Chicago Housing Auth., 608 S. Dearborn St., Zone 5, plans by Shaw, Metz & Assocs., 208 S. LaSalle St., Zone 4, Housing, Proj. 2-33, Area 1, 316 unit Madden Park Homes, 32nd St. and Prairie Ave., **$3,800,000;** Area 6, 157 unit Madden Park Homes, 40th St. and Oakenwald Ave., **$1,880,000;** Area 8A, 315 unit Madden Park Homes, 44th St. and Cottage Grove Ave., **$3,800,000;** Area 9, 157 unit Madden Park Homes, Pershing Rd. and South Park Ave., **$1,880,000;** Area 10, 315 unit Madden Park Homes, 35th St. and Cottage Grove Ave., **$3,800,000;** plans by Samuel A. Lichtman, 134 S. LaSalle St., Zone 3, and Mark D. Kalischer, 230 E. Ohio St., Housing Proj. 2-33, Areas 2, 3, 4, 5, 7, 8, 9, 240 unit Madden Park Homes, **$2,880,000.** CD 3/17.

▲ **Me., Rockland**—SCHOOL—School Administrative Dist., 5, Towns Rockland, Owleshead and South Thomaston, Supt. Schools, Rockland, plans by Bunker & Savage, 86 Court St., Augusta, Area High School, Broadway and Dedar St. **$1,250,000.** Bids October-November 1960 CD 6/15/59.

▲ **Mass., Falmouth**—SCHOOL—Town of Falmouth, Public Schools, P.O. Box 792, plans by Hugh A. Stubbins & Assoc., 806 Mass. Ave., Cambridge, Intermediate School, Jones Rd. **$1,800,000.** CD 11/23.

▲ **Mass., Foxboro**—SCHOOL—Town, Supt. Schools, Foxboro, plans by S. W. Haynes & Assoc., Inc., 336 Main St., Fitchburg, high school. **$2,000,000.** CD 11/26.

▲ **Minn., Bloomington (P.O. Minneapolis)**—SCHOOL—Bd. Educ. Independent School Dist. No. 271 plans by Armstrong & Schlichting, 4901 Olson Memorial Hy., Minneapolis, 1 and 3 story, 300x600 ft. Penn Junior High School, 8400 Ave. S. **$3,000,000.** Constr. 1961.

▲ **Miss., Jackson** — DORMITORIES, etc. — State Bldg. Comn., State Office Bldg., dormitories at Jackson State College, **$960,000,** CD 8/31/56; research wing University Medical Center, **$3,000,000.**

▲ **Miss., Whitefield**—HOSPITAL—State Bldg. Comn., State Office Bldg., Jackson, ward bldg. at Mississippi State Hospital, **$1,300,000;** rehabilitation heating system, Mississippi State Hospital, **$600,000.**

▲† **N. J., Cape May**—BARRACKS—U. S. Coast Guard Receiving Station, Cape May, barracks. **$1,183,000.** George M. Ewing Co., Western Saving Fund Bldg., Phila., Pa., engr. Bids after first of year. CD 4/1.

▲ **N. Y., Carmel**—HOSPITAL—Putnam Community Hospital, c/o Eggers & Higgins, archt., 100 E. 42 St., New York, Zone 17, 65 bed hospital, 25 acres, Stonelight Ave. and Drewville Rd. **$1,350,000.**

▲ **N. Y., New York**—HOME FOR AGED—House of The Holy Comforter, Grand Concourse and 196 St., Zone 58, plans by Rogers & Butler, 219 E. 44 St., Zone 17, home for aged addns. **$1,500,000.**

▲ **O., Ashtabula**—CITY HALL—City, City Hall, bond election Nov. 8, city hall. **$1,450,000.** CD 4/29.

▲ **O., Upper Sandusky**—SCHOOL—Bd. Educ., bond election Nov. 8, high school, **$1,375,000.**

▲ **Tex., Austin** — DORMITORIES, etc. — University of Texas, Office of Comptroller, men's dormitory, 600 capacity, **$3,600,000;** women's dormitory, 500 capacity, **$3,000,000;** 200 units family housing, **$1,200,000.**

▲ **Tex., Greenville** — POWER PLANT — City, City Hall, bond election Aug. 20, electric power plant unit, plant imprvs. **$1,336,000.**

▲ **Va., Norfolk** — CARGO TERMINAL — Virginia State Port Auth., New Monroe Bldg., general cargo terminal. **$17,000,000.** Lockwood Greene Engineers, Inc., Montgomery Blvd., Spartanburg, S. C., and Blackburn & Blauvelt, 3114 West Clay St., Richmond, consult. engrs. Constr. in Spring 1961.

▲ **Wash., Renton**—SCHOOLS—School Dist. 403, 1525 4th Ave. N., $3,000,000 bond election Sept. 13, Junior High School, Spring Glen area, **$1,000,000;** elementary school, Hazelwood area, **$500,000;** Renton High School enlargement, alterations, **$500,000.**

▲ **Wis., Milwaukee**—HOUSING—Milwaukee Housing Auth., 339 W. North Ave., plans by Schneider & S[illegible]fer, 759 N. Milwaukee St., and F. S. Gurda, 1015 W. Mitchell St., Carver Housing Proj. **$6,000,000.** CD 7/1.

▲ **Wis., Ripon**—SCHOOL—Bd. Educ. plans by Fritz von Grossman, 5455 W. Burleigh St, Milwaukee, high school. **$2,000,000.**

▲ **N. B., Fredericton**—UNIVERSITY—University of New Brunswick plans by Larson & Larson, Reynolds Station, Winston-Salem, N. C., U.S.A., 18 campus bldgs., University expansion program, **$9,500,000.**

COMMERCIAL BUILDINGS

▲ **Alaska, Anchorage**—HOMES—Alcan Pacific Co., 1445 E. 8 St., 33 houses in Hollywood Vista section of Government Hill, **$1,000,000.**

▲ **Ark., Jacksonville**—MOTEL AND SHOPPING CENTER—R. Mike Butner, 924 Commerce St., Little Rock, motel and shopping center, 8.5 acres at intersection of U. S. Highway 67 and Gregory St. **$1,000,000.**

▲ **Calif., Hanford**—HOSPITAL—Dominican Sisters of the Third Order of St. Dominic Inc., c/o Administrator, 1025 N. Douty St., plans by Maguolo Quick & Frank W. Trabucco, 355 Stockton, San Francisco, 3 story, bsmnt., rein. con., 125-bed hospital, **$2,500,000.** Bids Feb. 1961.

▲ **Calif., San Diego**—SCHOOL—San Diego Unif. School Dist., 4100 Normal Blvd., Zone 3, plans by Wulff & Fifield, 1422 6 Ave., Zone 1, 170,000 sq. ft. James Madison Senior High School. Clairemont, **$2,500,000.** CD 5/16.

▲ **Conn., New London**—DORMITORIES—Conn. College for Women, Mohegan Ave., plans by Shreve, Lamb & Harmon, 11 E. 44 St., New York, N. Y., 6 dormitories, central kitchen, 6 dining halls. **$4,000,000.** Bids in September.

▲ **D. C., Wash.**—GARAGE—Roscoe-Ajax Corp., 1107 19th St., N. W., plans by Edwin Weihe, 810 18th St. N. W., 14 story, THE MOTOR HOTEL, four-level 340-car basement garage, 15th and M Sts. N. W. Over **$1,000,000.**

▲ **Fla., Boca Raton**—SHOPPING CENTER—J. A. Canter & Assocs., Inc., 1451 N. Bayshore Dr., Miami Beach, shopping center, **$1,000,000.**

▲ **Ga., Atlanta**—HOMES, etc.—Cowart Lake, Inc., 1260 Lynway Lane S.W., community development Lake Cowart Estates, 1,500 homes, shopping center, schools, churches, incl. streets, $100,000; sewers, $100,000; water system, $75,000. Total est. **$30,000,000** (10 year program), $500,000 (first year). Will let contracts. Watts & Browning, 1119 Hemphill Ave. N.W., consult. engrs.

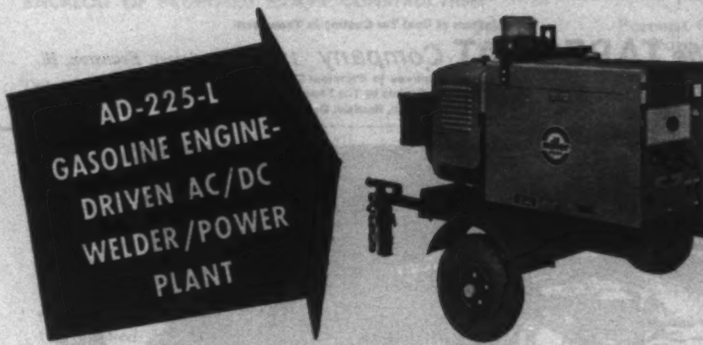
▲ **Ill., Evanston**—OFFICE—The Methodist Church, 77 W. Washington St., Chicago, Zone 2, 3 story office, Davis and Ridge Aves. **$1,000,000.**

▲ **Ill., Wilmette**—APARTMENT—Morris A. Pancoe, 1018 S. Wabash Ave., Chicago, Zone 5, plans by A. Epstein & Sons, 2011 Pershing Rd., Chicago, 11 story, 82 unit APARTMENT, No Mans Land area, **$3,500,000.**

▲ **La., New Orleans**—OFFICE—First National Life Insurance Co., 632 Baronne St., plans by Mathes, Bergman & Assn., 929 Howard Ave., New Orleans, La., 12 story, 80,000 sq. ft. glass, limestone and granite office. **$2,000,000.**

▲ **Mich., Olivet**—COLLEGE ADDN.—Olivet College plans by Meathe, Kessler & Assoc., 18000 Mack St., Grosse Pointe, college addn., incl. science, auditorium, administration. **$5,000,000.**

▲ **Minn., Brooklyn Center (Minneapolis P.O.)**—DEPT. STORE—Sears, Roebuck & Co., 925 South Holman



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Ave., Chicago, Ill., 165x200 ft. dept. store, Brookdale tract, Hy. 100, Shingle Creek, 59 Ave. N. and Osseo Rd., $2,000,000. Constr. 1961.

▲ **Mo., Kansas City**—OFFICE—Commerce Trust Co., 10 and Walnut, Kansas City, Mo., plans by Keene, Simpson & Murphy, 15 W. 10, Kansas City, Mo., 30 story, 500,000 sq. ft. office, 913 Main St. Over **$10,000,000.**

▲ **Mo., St. Louis**—APARTMENT, etc.—Siteman, Adreon, Inc., 7745 Carondelet Ave., Clayton, Zone 5, and Lindell Blvd. Investment Co., c/o Norman Probstein, 4600 Lindell Blvd., plans by Hellmuth, Obata & Kassabaum, Inc., 315 N. 10 St., Zone 1, 14 story, 78x170 ft. apartment, parking area, swimming pool, NW corner Lindell Blvd. and Taylor Ave. **$2,000,000.**

▲ **N. J., Madison**—DORIMTORY—Fairleigh Dickinson University, 223 Montrose Ave., Rutherford, dormitory for campus. **$1,000,000.**

▲ **N. J., Toms River**—APARTMENT HOUSE—Hampton Development Corp., 1099 Madison Ave., Lakewood, plans by Frederick W. Bohlmeyer, Point Pleasant Beach, apartment house, Hooper Ave. and Dayton St. **$1,000,000.**

▲ **N. Y., Little Valley**—CIVIC—Cattaraugus Co. Bd. Supervs., Court House, Little Valley, County Civic Bldg., **$3,642,000.** Pfohl, Stoll & Roberts, 185 Niagara St., Buffalo, consult. engrs.

▲ **O., Columbus**—HOMES—Hall Constr. Co. of Columbus, 4395 E. Livingston St., 400 Blendon Gardens Homes, **$6,000,000.**

▲ **O., Dayton**—HOTEL, etc.—Owner, c/o Paul H. Denau, archt., 31 W. 4th Bldg., Gibbons Hotel reconstruction, remodeling, parking ramp garage. **$3,200,000.** CD 3/31/55.

▲ **Pa., Harrisburg**—MOTEL—Capitol Associates, 1420 Walnut St., c/o Capitol Housing Corp., Phila., five story motel, west side of 7th St. between Boas and Cumberland Sts., incl. combination swimming pool-skating rink, **$1,000,000.**

▲ **Tex., Houston**—OFFICE—Allstate Insurance Co., 5510 Greenbriar St., 65,000 sq. ft., concrete, steel frame, brick, air-conditioned regional hdqrs. office in "Sharpstown", **$1,250,000.**

▲ **Va., Bristol**—SHOPPING CENTER—Owner, c/o Charles J. Lowrey, Bristol, plans by Berla & Abel, 310 Headquarters Bldg., 2000 "P" St. N.W., Wash., D. C., 250,000 sq. ft. shopping center, 2,500 car parking, **$3,500,000.**

▲ **Va., Merrifield**—APARTMENT—Saul Ritzenberg, 1028 Connecticut Ave. N.W., Wash., D. C., plans by Jack Cohen, 7961 Eastern Ave., Silver Spring, Md., garden apartment, Lee Hy. **$2,000,000.**

▲ **Wis., Milwaukee**—OFFICE—A. L. Swed, 729 N. Broadway, Zone 2, plans by R. C. Kurtz, 2003 W. Capitol Dr. office. **$1,000,000.**

▲ **Wyo., Casper**—OFFICE—Nicolaysen Lumber Co., 107 E. Midwest Ave., plans by Goodrich & Wilking, 722 E. Yellowstone St., 11 story, bsmnt., 100,000 sq. ft. Nicolaysen Tower Office, 100 car parking, **$1,000,000.**

▲ **Ont., Belleville**—SHOPPING CENTRE—Principal Investments Ltd., 133 Richmond St. W., Toronto, 140,000 sq. ft. shopping centre adjacent to Hy. No. 2, eastern part of city, **$4,000,000.**

▲ **Que., Montreal**—HOSPITAL—Hopital St. Jean de Dieu, Longue Pointe, plans by Auguste Martineau, 556 Manseau St., Joliette, 11 story, 40x300 ft., concrete brick, stone, rein.-con. frame mental hospital extension, Sherbrooke and Hochelaga Sts. **$4,500,000.** CD 2/26/57.

▲ **Que., Montreal**—HOTEL—Hilton of Canada and Hilton Hotels International, Queen Elizabeth Hotel, plans by William B. Tabler, 401-415 7th Ave., New York 1, N. Y., U. S. A., and Gerard Notebaert, assocs. archt., 1440 Towers St., hotel, Cote de Liesse Rd. opposite Montreal Airport, Dorval, **$3,000,000.** CD 3/24.

INDUSTRIAL BUILDINGS

▲ **Connecticut**—POWER PLANT—Housatonic Public Service Co., 133 Elizabeth St., Derby, plans by Gibbs & Hill, consult engrs.-archts., Pennsylvania Station, New York, N. Y., power plant, substation, transmission lines, two 100,000 KVA turbo generators, Shelton Docks, Shelton. **$31,000,000;**

▲ **Ky., Ashland**—STORAGE EXPANSION etc.—Armco Steel Corp., 703 Curtis St., Middletown, O., storage area and facilities expansion for handling iron ore, taconite pellets, ingots and scrap iron. **$3,950,000.**

▲ **Mich., Warren**—TECHNICAL CENTER—General Motors Corp., General Motors Bldg., Detroit, Zone 1, plans by Argonaut Realty Div., General Motors Corp., archt.-consult. engr., 485 W. Milwaukee, 1 story, 281,000 sq. ft. technical center, 12 Mile Rd. between Van Dyke and Mound Rds. **$2,000,000.** CD 12/1.

▲ **N. M., Clovis**—MEAT PACKING PLANT—Swift & Co., 4115 Packers St., Chicago, Ill., meat packing plant. **$1,000,000.**

▲ **Tex., Baytown**—PLANT—Humble Oil & Refining Co., 1216 Main St., Houston, 28 million lbs. orthoxylene plant. **$1,500,000.** CD 8/28/58.

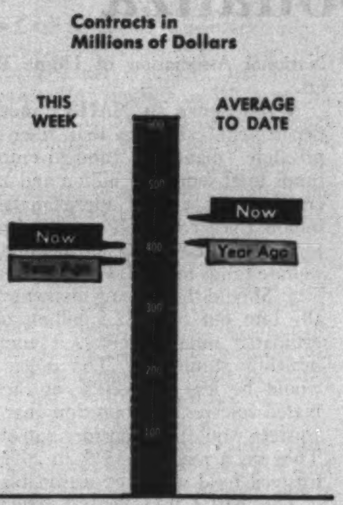
▲ **Tex., Dallas** — RESEARCH CENTER — Southwestern Medical School, 104 Main Bld. of University of Texas, Austin, medical research center. **$2,000,000.**

▲ **Que., Baie St. Paul**—PLANT—Continental Titanium Corp., 4593 Jeanne Mance St., Montreal, titanium dioxide producing plant, **$2,000,000** (equipped).

(Proposal Advertisements see p. 89)

Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

Contracts Awarded In 50 States By Type	This Week millions	Cum. 34 wks 1960 millions	Cum. 34 wks Chge '59-'60 %
All Heavy Construction	$406.4	$15,225.8	+ 9
By Ownership			
PRIVATE	245.2	8,181.2	+19
PUBLIC	161.2	7,044.6	− 2
State & Municipal	123.3	5,391.0	+ 7
Federal	37.9	1,653.6	−22
By Type of Work			
PUBLIC			
Waterworks	6.3	313.4	+ 7
Sewerage	7.2	391.5	−12
Bridges*	7.2	541.0†	+30
Highways	45.2	2,169.5	+ 4
Earthwork, Dams & Waterways	10.5	538.3	−16
Buildings:			
Excl. Housing	52.3	1,604.8	−12
Housing	9.5	452.7	− 6
Unclassified	24.3	1,036.0†	+ 5
PRIVATE			
Buildings:			
Mass Housing	84.1	4,167.7	+34
Commercial	48.0	1,597.4	+ 4
Industrial	71.4	1,804.3	− 4
Unclassified	40.4	609.2	+85

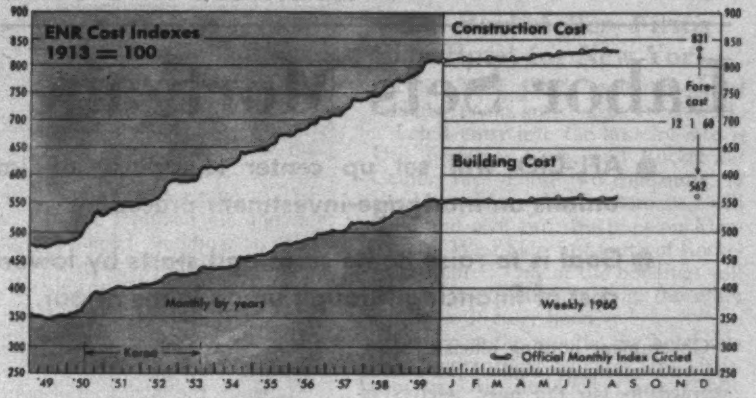
*Includes Private bridges

†$35.2 million moved from uncl. to bridges to adjust for bridges in Chesapeake Bay Bridge & Tunnel Contract

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88.000; industrial buildings, $110,000 other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Aug. 18 millions	Cum. 33 wks. 1960 millions	Cum. 33 wks. Chge '59-'60 %
Corporate Securities	$ 6.4	$1,885.6	−23
State and Municipal:			
All Except Housing	51.4	4,433.4	+9
Housing	...	182.2	+142
Federal Loans	2.2	115.5	+26
Federal Aid	...	2,717.8	−5
Total Nonfederal	$ 60.1	$9,334.7	−2
Federal Appropriations:			
Projects in U.S.	$ ...	$1,317.1	+281
Outside U.S.		157.8	+3,486
Total New Capital	$ 60.1	$10,809.6	+9



ENR INDEXES (1913=100), 20-cities' average	Week of Aug. 18 1960	% Change from July 21 1960	% Change from Aug. 20 1959
Construction Cost	829.92	−0.04	+2.18
Building Cost	562.11	+0.22	+1.09

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

Latest Month . . .

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	July 1960 (millions)	Percent Change from last Month	Percent Change from last Year
Total U. S. (50 States)	$122,902	+0.2	+8.0
By Ownership—			
Private	55,221	+0.4	+10.4
State & Municipal	53,560	−0.1	+6.2
Federal	14,122	+0.4	+6.0
By Type of Work—			
Waterworks	2,859	−1.1	+7.2
Sewerage	3,903	+0.3	+8.6
Bridges	3,330	−0.5	−1.0
Highways	13,669	−0.4	+8.7
Earthwork, Dams and Waterways	11,854	0	+2.4
Public Buildings	22,219	+0.3	+8.4
Industrial Buildings	17,702	−0.1	+4.2
Commercial Buildings	26,849	+0.9	+19.1
Unclassified, Private	10,671*	+0.2	+1.8
Unclassified, Public	9,847	−0.1	+3.9

* Includes Private Bridges, $98 million.

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1960 July (millions)	1960 7-months (millions)	Percent Change from 1959 July†	Percent Change from 1959 7-Mos.†
Total U. S. (50 States)	$1,305	$13,626	+31.1	+23.8
By Ownership—				
Private	685	7,688	−3.9	+22.4
State & Municipal	428	5,049	+75.3	+28.4
Federal	192	890	+402.8	+12.7
By Type of Work—				
Waterworks	8	205	−44.0	−14.8
Sewerage	55	380	+44.0	+10.8
Bridges	9	158	+200.3	−34.3
Highways	119	1,666	+684.3	+72.8
Earthwork, Dams and Waterways	34	143	+344.5	+16.9
Public Buildings	320	2,660	+95.6	+21.3
Industrial Buildings	142	1,988	−31.7	+6.6
Commercial: Mass Housing	308	3,507	+47.6	+64.9
Other Building	190	1,760	−11.7	+13.5
Unclassified, Private	46	433	−44.4	−41.4
Unclassified, Public	75	726	+87.0	+17.5

† Based on average week: 4 weeks in July, 1960; 5 weeks in July, 1956; 30 weeks in first seven months of 1960; 31 weeks in first seven months of 1959.

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (50 States)	$949	$6,609	+2.5	+5.4
By Ownership—				
Private	369	2,628	+13.4	+23.5
State & Municipal	457	2,894	+9.7	+5.5
Federal	122	1,088	−33.3	−22.2

Labor Sets Mortgage Bonanza

- **AFL-CIO will set up center to advise affiliated unions on mortgage-investment procedure.**
- **Goal is to raise home sales and starts by lowering cost of financing through union loans at par.**

Government housing officials, builders and mortgage bankers have long yearned to tap the huge reserves of pension funds for home mortgage money. Last week access to that lode seemed closer than many had hoped.

The AFL-CIO Executive Council voted to establish a department to advise affiliated unions on mortgage investing and to encourage them toward that end.

The AFL-CIO, however, has a goal of its own—to bring down the cost of borrowing money for home purchase, while simultaneously providing its member unions with a larger return on the money they invest.

The federation finds no fault with the interest rates on loans insured or guaranteed by the Federal Housing Administration and the Veterans Administration, 5.75% and 5.25% respectively. It does, however, consider discounts from the face amount of a mortgage a practice that should be eliminated. (When a mortgage, or any loan, is discounted, the borrower receives less cash than the amount he contracts to borrow, but pays interest on the contract amount and repays the contract amount. This raises the effective yield to the lender above the stipulated interest rate.)

The federation would have its unions lend the full amount of the mortgage at the maximum allowable interest rate, or the rate generally prevailing at any time. (Current FHA-VA rates are authorized ceilings that can be adjusted downward at a lender's discretion if market conditions so dictate.)

Although the AFL-CIO action brought enthusiastic response from builders and federal housing officials (Housing Administrator Norman P. Mason says he is "delighted") no big and immediate switch to mortgage investment by the unions is expected. The unions for the most part don't have full say on the matter of investment: Some of the funds are jointly managed by the unions and the employers, some are managed by a company, others are managed under a trust agreement with a bank, trust company or insurance company.

Moreover, the intricacies of mortgage investing alone would work against immediate action. And the federation's expressed goal of accepting at par may be at variance with ideas of union fund administrators.

Some may not care to be the primary investor, choosing instead to purchase existing mortgages at the going market rates. In recent months, some building trades unions have done just that.

The carpenters Pension Trust Fund for Northern California initiated a regular mortgage investment program this year aimed at acquiring $25 million worth of government-backed home mortgages (ENR Mar. 17, p. 17). So far, $2.4 million has been invested in mortgages, a rate of $400,000 a month. By purchasing the mortgages at a discount, the fund obtains a yield of 5.62% after payment of fees and service charges.

The Nassau District Council of Carpenters on Long Island, N. Y., has also ventured into mortgages, but it too chose the secondary market route. So far its investment is only $275,000, but in the next six months the mortgage holdings of this group and those of two other labor unions preparing to enter the market are expected to total $4 million. The mortgages bought, and those that will be bought, will be only those on houses constructed within the jurisdiction of the unions.

In some cases, unions in the New York City area have become the primary investors in a group of individual homes. In those cases, however, the mortgages were discounted.

But even if the affiliated unions, acting as primary investors, were to invest at market prices, any large flow of funds to the housing market would have beneficial effect. Just the presence of the money would tend to minimize the depth of discounts at any given time.

It is the long-run potential of the AFL-CIO action that puts a gleam in the eyes of officials and members of the National Association of Home Builders.

A spokesman in NAHB's mortgage department estimates that reserves of privately managed (non-government) funds total some $37 billion and are increasing at a rate of approximately $3 billion a year. Possibly one-third of the total fund reserves is in pension and welfare funds for AFL-CIO union members. Should the housing market eventually bite out only $2.5 billion of the estimated union reserves, it could be healthily stimulated. The dollar total would be less than 20% of the estimated reserves, a proportion that fund trustees would not consider out of line. They say a range of 15% to 25% of a trusteed fund would be reasonable.

The AFL-CIO's central service for unions and fund trustees will provide advice on the selection and the set-up of a suitable system to fit individual union needs. It will also collate information on mortgage-financing plans in progress and on total funds and mortgage investment funds available. This data will help builders who are seeking mortgage committments for their planned developments.

Lumber Futures Market Under Study by Builders

"Builders need lumber futures," according to California builder Earl W. Smith, a former president of the National Association of Home Builders.

He told lumbermen and builders meeting in New York City last week that the large-scale developer requires a futures market to protect himself from the "peaks and valleys" of lumber price movements.

The session was an outgrowth of a proposal for a lumber future market by E. A. Beveridge, former economist for Merrill Lynch Pierce Fenner & Smith, Inc., stock and commodity brokers (ENR June 23, p. 268).

Mr. Smith said present means of obtaining lumber price protection though individual negotiation with lumber dealers, are inadequate.

Several lumbermen at the meeting said they were doubtful that a futures contract could be established that would accurately reflect price movements in the large number of grades and sizes of lumber available. This question will be studied by a committee of builders and lumbermen.

Business in Brief . . .

• **Contractor in manufacturing** – Arthur G. McKee & Co., Cleveland construction company, has bought controlling interest in Western Machinery Co., San Francisco. Through a subsidiary, McKee will now branch into production of equipment for processing of minerals, chemicals and other materials.

• **Fertilizer plant**–California Spray-Chemical Corp. will build a $22-million chemical fertilizer plant at Fort Madison, Iowa. The company is owned by California Chemical Co., a wholly owned subsidiary of Standard Oil Co. of California.

• **Florida power plant**–Tampa Electric Co. has bought 150 acres of land for a $50-million coal-fired power plant.

• **Canadian airport**–A $23.6-million contract has been awarded to the Foundation Co. of Canada to build Malton Airport's first aeroquay. The new Toronto terminal, an unusual doughnut-shaped building, is the first of three such structures planned for the airport.

• **Chicago's big plans**–Close to $700 million will be spent by Chicago for capital improvements during the next five years. The updated five-year plan calls for outlays of $207 million this year; about the same amount in 1961, and $278 million during 1962 to 1964 inclusive.

• **Indian rubber**–The Lummus Co. of New York City has won a contract to build India's first synthetic rubber plant.

Oil Groups Open Road-Fund Fight

The nation's petroleum industry is going direct to the highway user in its campaign to halt additional tax increases on gasoline and the use of gasoline-tax revenues for purposes other than highway construction.

Industry advertisements in newspapers across the country last week called attention to the amount of federal and state taxes paid by motorists on each 10-gallon purchase of gasoline. The amount of tax noted was exact for each of the states in which the ads appeared.

The campaign is sponsored by the Gasoline Tax Education Committee, which is financed by U.S. oil and gasoline producers.

Announcements point out the amount of the taxes, compared to the price of the product; the percent of tax increase per gallon over the last 10 years, as compared to a smaller increase on the price of the product; and the total annual amount of gas taxes paid by the average car owner.

The advertisements say gasoline retailers favor road construction and "fair and reasonable taxation for this purpose," but add that dealers also believe gas taxes now are at "unreasonably high levels." The ads also contend that all special taxes on motorists "should be used only for highway purposes."

During the next few months, the advertisements will be placed at regular intervals in 136 major metropolitan-area daily newspapers and another 2,000 weekly and small daily newspapers. Radio and television also will be used.

Aim of the campaign is to stir grassroots opposition to further gas tax increases at the state level and also block possible attempts in Congress next year to retain the temporary one-cent increase voted in 1959. On July 1, 1961, the present four-cent federal gas tax is scheduled to drop to three cents. At the same time, one-half of the present 10% manufacturers' excise tax on cars and five-eighths of the 8% excise tax on automotive parts and accessories are scheduled to go into the Highway Trust Fund. All revenues from these levies currently go into the Treasury for general purposes.

The new committee will not be a lobbying organization either in the states or in Washington. These activities will continue to be handled by the petroleum and dealer groups already registered for that purpose.

Highway financing will be a top subject in Congress and the states next year. Out of the 48 states in which the campaign will be conducted, 44 will have legislative sessions. Only Hawaii and Alaska will be excluded from the drive.

Uris, Rockefeller Firms Plan Hotel for New York

New York City's potential hotel building boom gets bigger every week.

Latest entry into the hostelry race is Uris Buildings Corp. and Rockefeller Center, Inc. Those two companies, in a $150-million joint enterprise, will build and own two structures on Manhattan's West Side, just north of Rockefeller Center. One of the buildings will be a 42-story office building; the other will be a 38-story hotel.

Earlier in the month, the hotel was only "under study" by Percy Uris, chairman of Uris Buildings Corp. (ENR Aug. 11, p. 102). He had announced the purchase of a site, complete with excavation, where a $75-million office building would be constructed. The property was bought from Webb & Knapp, Inc., which had planned it for a hotel, but inability to obtain financing resulted in the land-lease sale.

The hotel planned by the new company to be formed by the Uris and Rockefeller corporations brings to two the number of new hotels scheduled for the area. Loew's Theatres, Inc., plans construction of a 50-story hotel to cost $50 million only one block distant from the Uris-Rockefeller hotel. Loew's has started construction of a $25-million hotel on Manhattan's East Side.

Mortgage financing for the Uris-Rockefeller hotel has been arranged with New York Life Insurance Co. Financing for the office building will be provided by Prudential Insurance Company of America.

Construction of the hotel will start next spring, for completion in 1963.

Private Housing Starts Sagged Again in July

The Bureau of the Census reports that 114,100 housing units, including farm dwellings, were started in July. This is a much more than seasonal decline from June's rate and is 24% under last year.

Moreover, June's total was revised down to 126,800 units from the preliminary figure of 129,500.

Private housing starts accounted for 110,400 of the July total, 9% under June and 25% below July 1959. The seasonally adjusted annual rate of private starts sagged to only 1,173,000 units, the Census Bureau estimates. This is nearly down to the very low pace of March when bad weather sharply curtailed homebuilding activity. The weather was good in July, but home sales may have fallen quite a bit short of builders' expectations.

Ghana Power Plan Snags on Financing

- **International politics and private interests clash head-on over Volta River development.**
- **A compromise is expected to head off a chance for Soviet economic penetration.**

International negotiations over a multimillion-dollar hydroelectric power and aluminum production project on the Volta River in the West African State of Ghana have hit a snag. Talks between Ghana Prime Minister Kwame Nkrumah, the International Bank for Reconstruction and Development (World Bank), the U. S. and British governments, and a private consortium of international aluminum producers have turned into a grim object lesson in how thick and sticky a lot of cooks can make the broth of international industrial development.

Worse, in the context of the cold war, is the fear that Russia might take over the project if current negotiations break down altogether.

Actually, both diplomatic and private business interests involved in the Volta project expect to find a compromise. But the story of conflicting interests points up the difficulties of this kind of project.

The key to the conflict is what Ghana will charge the aluminum producers for electricity.

The private consortium is headed by Kaiser Industries Corp. Kaiser's partners have not been named publicly but are known to include Reynolds Metals Co., Olin-Matthieson Chemical Corp. and Aluminum Co. of Canada, among others.

This group plans to produce aluminum from Ghana's bauxite to supply Europe's growing demands. Estimates on total plan cost range from $100 million to $150 million, depending on its size. The consortium is considering scaling down its plans from 120,000 tons per year capacity to 80,000 tons because of the power rate hassle.

Before anything else, the Volta River's power has to be harnessed. Schemes to build hydroelectric plants go back to the early 1950s, when British engineers looked into doing the job. In 1956, they finally rejected plans to build a single large dam at Ajena as too costly.

Next Kaiser Engineers, backed by the U. S. government, reassessed the project. The real spur was political: Nkrumah, friendly to the West, had promised his electorate the dam would be built, and the U. S. committed its help.

Kaiser found the project could be made feasible by building three smaller dams instead of one big one. Capacity would total 975,000 kw and cost an estimated $300 million—nearly a third more power for a third of the cost estimated by the British, who had envisaged an expensive network of related public works such as roads, schools and housing.

The plan called for Ghana to put up almost $80 million for the first dam at Kosombo, and the World Bank to put up the rest, with the U. S. and British governments adding smaller sums.

Last year, the State Department asked Kaiser to start assembling the private consortium to build the aluminum works. The group was to get power at a special rate of 2 to 2.5 mills per kwh.

But the World Bank, after a survey completed this summer, urged a charge of at least 2.5 mills and preferably 3.5, to make the project sound economically.

Nkrumah then asked for 4.5 mills, and the private group exploded. Nkrumah dropped his proposed rate to 3.5 overnight but the consortium continued to balk, and is still balking.

Nkrumah asked the U. S. government to help straighten the talks out, hinting that if the deal fell through he would have to turn "elsewhere," meaning, of course, to Moscow, which already had offered help.

Nkrumah reportedly feels the consortium is trying to get cheap power at Ghana's expense. Consortium members feel the World Bank "sold out" private interests by suggesting a high rate.

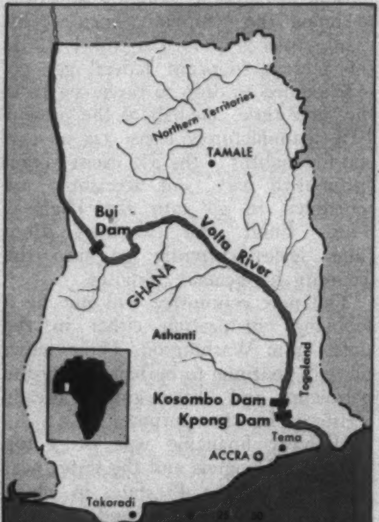
U. S. officials are now trying to find some public money cheaper than World Bank funds, to permit Ghana to drop the power rates.

This would bring in the U. S. Export-Import Bank and State Department's Development Loan Fund. Nkrumah's Finance Minister says he has lined up some low-interest money from the British government to add to the kitty. Ghana now is asking the World Bank for only $45 million, and DLF for another $30 million at 30-year, 3¼% interest, not tied to U. S. purchases.

The State Department announced last week that the U.S. is willing to lend $30 million. But the decision has not yet been made whether the whole sum will be taken from DLF, or whether the Export-Import Bank may still participate in part of the loan. Thus it remains unsolved as to whether the U.S. loan will enable Ghana to offer the consortium cheaper power rates.

A compromise of one sort or another could reduce the power rate to somewhere between 2.5 and 2.75 mills, which consortium spokesmen think they can accept.

In a touchy atmosphere in which no one is willing to talk for the public record, most experts think the overriding international political implications of the situation will force all the diverse participants back together.



THREE VOLTA DAMS would produce power for aluminum production.

California Sets Buildings Outlays of $115 Million

California's Division of Architecture plans outlays of more than $115 million for buildings in the fiscal year ending next July 1.

Northern California will get $74 million of the total and Southern California $41 million worth.

Materials required for the program will include more than 29,000 tons of reinforcing steel, 9,500 tons of structural steel, 450,000 cu yd of concrete, 700,000 bbl of cement.

The new No. 12 Series E Motor Grader spreads untreated base and handles cleanup for Massey Sand and Rock Company

THE NEW NO. 12E SETS THE STANDARDS

Widening U. S. 60-77-99 to a 4-lane limited-access highway, Massey Sand and Rock Company of Indio, California, recently added a new No. 12E Motor Grader to its Cat fleet. The improvements, effective with this new series machine, showed up immediately. As Tom W. Carter, manager of the firm, puts it: "The increased productivity of the new No. 12 was very noticeable. You can depend on new Cat products to give greater operator comfort and better productivity."

One of the big reasons for the new performance standards of the No. 12 is the new compact 115 HP engine. Incorporating the latest developments in metallurgy and design, this modern engine has greater lugging ability for the tough jobs, long life and easier servicing.

Caterpillar engineers did not stop with just a compact diesel. There's a new vertical starting engine to give easier, all-weather starting. The dry-type air cleaner is now standard—it removes 99.8 per cent of air-borne dirt every service hour, cuts maintenance.

Of course, the new No. 12 retains the dependable Caterpillar oil clutch that gives up to 2000 hours without adjustment; mechanical controls that engage easily; and plenty of throat clearance between moldboard and circle for improved rolling action.

See your Caterpillar Dealer. He'll show you—on your job—that the No. 12E lives up to what users are saying about it. He can also show you the 150 HP No. 14, the No. 112F with 100 HP and the No. 112E with 85 HP—they're built to be the best for the job.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

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Senate Passes Buck to House

- **Fate of the minimum wage and situs picketing bills may be up to the House Rules Committee.**
- **The Kennedy minimum wage bill gives construction some new questions to cope with on coverage.**

The Senate this week is expected to approve a construction union picketing bill to match last week's action on minimum wage legislation—putting the fate of both measures into the reluctant hands of the House Rules Committee.

The conservative House Rules Group, which channels legislation through the House, would prefer to sit tight on both measures. But the Democratic leadership, headed by Democratic Presidential candidate John F. Kennedy, who helped author both pieces of legislation, will apply heavy pressure to push them all the way through Congress.

At this point the final outcome is in doubt.

For the construction industry, the most critical measure is the picketing bill, which would permit craft unions to picket one employer on a construction project, even though this could halt the work of other contractors on the same project. It is designed to erase the current rule that bars such picketing as an illegal secondary boycott when even one of the objects of the picketing is to involve neutral contractors in the dispute.

In the minimum wage legislation, the industry has a lesser stake, though the bill would reach an estimated 200,000 construction workers. The Kennedy measure, lifting the current $1 an hour minimum to $1.25 over a three-year period, also extends coverage to some four million retail, service and other workers. This is where the construction industry workers come in.

The significant provision is one that provides coverage for all employees of a firm doing at least $250,000 worth of business a year if one or more of the firm's employees perform work, in any workweek, that falls within the broad definition of interstate commerce. Under the present law, only those workers engaged in interstate commerce are covered.

Except for the bill's effect on the maintenance of existing wage differentials, it would have little effect on construction industry straight-time wages of mechanics, which are generally in excess of $1.25. The impact would be largely on the payment of time-and-a-half for overtime to covered workers, both blue collar and white collar. That is the provision that has caused trouble in recent years for several consulting engineering firms.

Craft union leaders have been luke warm on the minimum wage bill, partly because the minimum wage levels are too low to affect craft union pay.

Another factor limiting their enthusiasm is a feeling this legislation could hinder Davis-Bacon legislative proposals coming before the next Congress. These include overtime provisions Also, as another example, the Iron Workers Union has a constitutional provision requiring that overtime be paid at double-time, rather than time-and-a-half, and this measure could prove disruptive.

The Kennedy minimum wage measure, both in wage and coverage, far outstrips the House-passed minimum wage bill, which limits the wage floor hike to $1.15 and extends the law to some 1.4 million retail employees. The House Rules Committee has control over this bill and decides whether it should be compromised with the more liberal Senate version in conference.

As far as the situs picketing bill is concerned, the Senate is expected to approve a measure similar to a bill already through the House Labor Committee and resting in the Rules Committee, which is reluctant to send it to the House floor for a vote. Both House and Senate, in a vote, would be likely to approve it.

Even before the picketing measure reaches the Senate floor, however, it must clear the Senate Labor Committee—a move that will probably come by mid-week. Several limiting amendments are still to be offered in committee, with only one more likely to pass.

This is the way the measure now stands:

- The Senate committee has amended the bill to specify that the picketing must be limited to job-site disputes, and not against employers delivering products to a construction site. Although this was understood to be the intent of the original measure by its proponents, the amendment, authored by Sen. Winston L. Prouty (R., Vt.) makes it clear that product boycotts are outlawed.
- The committee must still vote on another measure, sponsored by Sen. Barry Goldwater (R., Ariz.) that would bar picketing at missile sites and other installations that would affect defense production.

Labor in Brief . . .

- **Demolition is a man's job**—The U. S. Labor Department will hold a hearing September 14 on a proposal to bar workers under age 18 from engaging in building and ship demolition work because of the hazards involved. Under the child labor provisions of the Fair Labor Standards Act, the department can increase the minimum age for such work.

- **What is Labor Day?**—The 65,000-member Detroit Building Trades Council has voted to ignore this year's Labor Day celebration, charging that it has become a heydey for politicians rather than a day of tribute to labor.

- **Construction prospects**—The U. S. Labor Department's Bureau of Labor Statistics predicts 16 million more jobs in the nation by 1970. It says employment in finance, insurance and real estate will grow the fastest, followed by construction, services, trade, communications and public utilities.

- **Few jobs for the young**—The construction industry absorbs only a small percent of the nation's young job hunters, the U. S. Labor Department reports. Based on October 1959 figures, it employed 8.3% of the June 1959 graduates, while agriculture took 9.7%, manufacturing 30.4%.

Unions Turn Down 80-Cent Offers

Multimillion-dollar strikes continue in New York; unions accept more modest increases elsewhere

Three New York City construction strikes moved into their eighth week this week and another into its fourth week. Members of the striking unions had lost some $16.5 million in wages and fringe benefits by the end of last week. And more than 13,600 nonstriking construction workers are idle.

Although there was some optimism that a settlement might soon be reached with one of the trades, breaking the deadlock with the others, too, a factor of uncertain consequence loomed on the horizon. Members of three of the trades became eligible to file claims for state unemployment insurance benefits, having waited out the 49-day suspension of eligibility imposed on strikers by New York law.

Trades on strike since July 1 are the sheet metal workers, steamfitters and asbestos workers. Elevator constructors have been on strike since August 1.

While several trades, still technically in negotiation, have continued to work without contracts, city employers have already settled with 14 trades on the basis of long-term contracts that call for the most part for a 70-cent package increase over three years.

This package is considerably higher than most of the recent settlements in other parts of the country. Minnesota carpenters in highway construction have just settled for 40 to 48 cents in a three-year contract, for example, and electrical workers in Milwaukee, Wis., for 16 cents in a one-year pact.

Employer offers to the striking trades in New York have ranged up to 80 cents. Sheet metal workers, with a present scale of $4.50 plus 56 cents more in fringes, have been offered a three-year contract for approximately 80 cents, with 75 cents of this in wages. Steamfitters, now earning $4.50 plus 12% in fringes, have rejected a three-year, 80-cent offer that would add 50 cents to wages. Asbestos workers have been offered 70 cents over three years.

Employers negotiating with the elevator constructors, who are on strike for the first time in 68 years, have proposed a wage increase of 11 to 18 cents during the first year of a three-year contract with a reopener on wages at the end of the first year. The furnishing of maintenance men, the manufacturer's right to perform work in the field or in the factory at its discretion, and a union demand for a hiring hall are the principal issues.

Latest of the settlements concluded in the city were with the boilermakers, who accepted a 78-cent package in a three-year contract, and the derrickmen, who settled for a 55-cent wage increase spread over two years.

Elsewhere, the Milwaukee electrical workers' settlement for 16 cents over one year, giving them a scale of $3.73, was a departure from the two-year pattern set in negotiations between other building trades and the Allied Construction Employers' Association.

Typical of the pattern is a new two-year carpenters' contract that raises the wages of lumber and sawmill workers 10 cents now and 14 cents next year. Piledrivers and refrigeration steamfitters have settled for similar wage increases.

In Minnesota, the statewide, three-year carpenters' contract with the Associated General Contractors gives rural carpenters a 40-cent wage boost in three installments and metropolitan carpenters a 48-cent wage boost in four installments. Current scales are $3.45 for metropolitan carpenters, $2.77 for rural carpenters.

The AGC has also signed a three-year, 43-cent agreement with ironworkers in southern Minnesota, calling for 15 cents for health and welfare this year, 15 cents in wages next year and 13 cents in wages in 1962.

Other recent settlements include:

- A one-year, 13-cent contract for electrical workers in Bellingham, Wash.
- A 25-cent wage increase for Casper, Wyo., plumbers payable over the next five years in installments of three, four, five, six and seven cents. The first increase moves the union scale for journeymen to $3.94.
- A four-year contract that gives central New York State sheet metal workers a 15-cent wage boost each year. New scale is $3.82.
- A two-year contract for plumbers in Syracuse, N.Y., calling for a 15-cent wage boost each year and making the present scale $3.78.

Labor Maps Political Plans

Organized labor stepped up its political activity on two fronts last week. This time it says it means business.

In an effort to get every one of the 13.5 million AFL-CIO members and their families to speak their pieces at the ballot box, the AFL-CIO has decided to launch a $500,000 registration drive, to be followed by a get-out-the-vote campaign.

At the same time, the now-independent teamsters union, self-styled as "a sleeping giant in politics too long," has issued a detailed blueprint for effective local-level, political action. Purpose is to give three million teamsters (including wives) a voice in politics at all levels.

The AFL-CIO plans to set up committees at the community level to execute its program. It expects to finance the plan by "voluntary" contributions from every affiliate at the rate of five cents per member. The federation will meet the deficit, if any.

The program of the teamsters' new political action arm, called DRIVE, is much more advanced than the AFL-CIO one and draws heavily on both the philosophy and mechanics of similar activities in the business community.

"What labor has lost through political action by its enemies, we must regain through political action by labor's rank and file," president James Hoffa is telling the teamsters.

The teamsters' premise is that "the only thing that counts in politics is votes."

The union's Department of Legislation and Political Education has put out a series of five instruction manuals, which represent the union's blueprint of organization for practical, political action. These tell the teamsters how to form and run precinct organizations with precinct stewards and neighborhood stewardesses; how to organize and operate a community stewards assembly; how to get voters registered; how to see that they vote; how to publicize the teamsters' views—and even how to write letters.

In the words of Mr. Hoffa, this series of pamphlets in a bold approach to "grass roots" lobbying tells teamster members how they "can exercise the art of political self defense."

"When enough teamsters, teamsterwives and like-minded neighbors vote," the union says, "we'll beat the boss at the ballot box."

Legal

Third Party Allowed Damages

A series of integrated contracts may make a contractor under one of the contracts a third party beneficiary of another contract. Result is an extension of the contractor's legal rights.

The operation of the law is illustrated by the following Ohio case.

The State of Ohio entered into a contract with New York Chicago & St. Louis Railroad Company for the elimination of a grade crossing. The state also entered into a contract with Visintine & Co. to perform certain work in connection with the grade crossing job. Each of the separate contracts provided that the work should be performed in accordance with the plans and specifications submitted for the project and in sequence as therein designated. The nature of the work was such that none of the parties could perform its part in a single operation, but numerous ones were required and the time when each was to be performed was specified and spelled out in the plans and specifications. These contracts were subsequently carried out and the project completed.

After the project was completed Visintine Company brought an action against the railroad company to recover damages sustained by it as a result of the failure of the railroad company to perform its part of the work in proper sequence. The court held that the Visintine Company was a third party beneficiary of the contract between the state and the railroad and could recover under the contract for the damages it sustained as a result of the railroad to complete its part in the sequence called for by the contract. This judgment was affirmed on appeal.[1]

The appellate court stated: "The state of Ohio owed certain duties to plaintiff (Visintine) under the contract entered into between them. Among those duties was that of providing the plaintiff with a site on which it could perform its work without hindrance or delay and of doing those things which it promised to do at such time and in such manner as would not hinder or delay the plaintiff. Even though the state, because of government immunity, can not be sued for its failure to perform those duties, the duties nevertheless existed. The performance of those duties was undertaken by the defendants (railroad companies) under their contracts with the state of Ohio. Since the contracts between the defendants and the state, in addition to the performance of certain obligations assumed by the defendants for the benefit of the state, provided, also, for the performance of certain obligations owed by the state to the plaintiff, it would seem that the plaintiff falls squarely within the definition of 'creditor beneficiary.'"

The appellate court referred to Restatement of the Law of Contracts, Section 133, where it is stated that a creditor beneficiary is a third party beneficiary under a contract.

(1) Visintine & Co. v. New York, Chicago & St. Louis R. Co., 160 N.E. 2d 311, Supreme Court of Ohio, July 15, 1959.

Law Varies on Priorities In Bankruptcy Cases

Courts in some states have held that where a general contractor goes bankrupt, the rights of a subcontractor are superior to any tax lien of the government.

In a federal case, for example, the United States sued to foreclose a tax lien against a contractor's property.

The general contractor went bankrupt. A dispute arose as to who had priority with respect to money due the general contractor—the government or the subcontractor?

The court held that under North Carolina law, the subcontractor had priority over the government's claim, even though the subcontractor had failed to file foreclosure action within six months after he acquired the liens, as the law requires.

The rights of the subcontractor were not extinguished by the government's tax lien on the money owed the contractor, the court said.

The only claim the contractor had against the owners, the court noted, was for so much of the contract price as remained unpaid after the owners had deducted a sum sufficient to pay the subcontractor.

The court concluded that the balance of the construction price owed by the owners was first applicable to payment in full of subcontractor claims, with only the remainder disbursable as an asset of the bankrupt.[1]

(1) Barnard-Curtiss Company v. United States, 257 F.2d 570, U.S. Court of Appeals, Fourth Circuit, July 18, 1958.

(*Legal continued on p.* 88)

Checklist of helpful
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PRACTICAL PRESTRESSED CONCRETE

Gives basic principles, procedures, and numerical examples for design of safe, economical prestressed concrete structures. **By H. Preston, John A. Roebling's Sons Corp. 360 pp., 136 illus., $11.50**

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Shows how to make complete, accurate estimates in all areas of plumbing, heating, and piping work. Explains specific cost analysis methods. **By P. Davis, Gamble, Pownall, and Gilroy. 208 pp., 94 tables & illus., $6.50**

FRAMES AND ARCHES—Condensed Solutions for Structural Analysis

Shows how to save time in analyzing complex structures by using a new concept in solutions of frames and arches of constant or variable cross section. **By V. Leontovich, Civil Eng. 494 pp., 523 illus., $20.00**

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A complete, well-rounded how-to guide covering the specialized job of the estimator. Shows how to make accurate building construction estimates. **By G. Cooper, Building Contractor. 2nd Ed., 398 pp., 180 illus., $7.50**

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HYDRAULIC ENERGY DISSIPATORS

Gives a thorough treatment of hydraulic energy dissipators — their design, functions, and uses. Covers both practical and theoretical aspects. **By E. Elevatorski, Univ. of Arizona, 228 pp., 173 illus., $10.00**

CIVIL ENGINEERING HANDBOOK

Gives theory, practice, and fundamentals of all branches of civil engineering to help you solve everyday problems more quickly and efficiently. **Edited by L. Urquhart, Consulting Engineer. 4th Ed., 1174 pp., 814 illus., $17.50**

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Faulty Contract Language Resulted in Extra Costs

Those who wish to protect themselves against the cost of extra work should make sure that the contract covers all the work required to be done.

A general contractor on a Tennessee job, for example, did not specifically include the removal of debris in his subcontract for grading and was forced to pay for its removal as extra work. The facts were these:

The general contractor for a public housing project in Chattanooga, Tennessee entered into a subcontract with J. W. Bateson Company for the performance by the latter of "all Clearing, Site Excavation, Filling and Grading Work, and all Landscape Work, in strict accordance with the plans . . . and specifications . . . for the total lump sum amount of . . . $82,000.00"

The general contract provided that the general contractor would "remove from the site, and dispose of, all debris and excavation materials not suitable or needed for fill."

This provision was not included in the subcontract. The subcontract did state its intention to "include all work and material" required by the excavating, filling and grading provisions of the specifications. And it provided that "any large rocks now in this waste and any large rocks on top of the existing grade will not be used to fill inside the building lines."

During the course of the work, the subcontractor was required to remove debris in the form of 12,272 cubic yards of rock that was not suitable or needed for fill.

He then brought an action to recover for the cost of doing this work on the ground that it was extra work and not covered by the contract.

The subcontractor obtained a recovery which judgment was affirmed on appeal[1], the court holding that there was no provision in the subcontract that required the subcontractor to remove this debris.

(1) J. W. Bateson Company v. Romano, 266 F. 2d 360, U. S. Court of Appeals, April 20, 1959.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers; and Legal Cases for Contractors, Architects and Engineers.*

OFFICIAL PROPOSALS

Bids: September 20, 1960

New York International Airport Van Wyck Entrance Road Landscaping—Phase III

THE PORT OF NEW YORK AUTHORITY
CONTRACT NYA-140.045

Sealed proposals for the sale of materials and performance of Work for landscaping portions of the Van Wyck Entrance Road and Central Terminal Area at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, September 20, 1960, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York, August 25, 1960.

Bids: September 1, 1960

Construction of Maintenance Building for Niagara Power Project in Lewiston, Niagara County, New York

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS FOR
SPECIFICATION NO. PA-N-23039
NIAGARA CONTRACT NO. N 28

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for construction of the Maintenance Building for the Niagara Power Project, in Lewiston, Niagara County, New York, until 10:30 A. M. Eastern Daylight Saving Time on the 1st day of September, 1960, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The work under this contract consists of a building approximately 190 feet by 100 feet having a steel frame and precast concrete wall panels.

The estimated quantities of the principal items of work are as follows:

4,500 cu. yds.	Excavation, unclassified
2,100 cu. yds.	Foundation course crushed rock
6,600 gals.	Bituminous macadam penetration method
1,000 cu. yds.	Concrete
140,000 pounds	Reinforcement bars
340,000 pounds	Structural steel
14,000 sq. ft.	Furnishing and stalling concrete blocks, various sizes
20,100 sq. ft.	Furnishing and installing steel roof decking

Also included is furnishing and installing mechanical equipment and piping, installing electrical systems complete and painting.

All work shall be completed on or before July 1, 1961.

Plans, specifications and proposal forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, specifications and proposal forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the total of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

District of Columbia—Hwy. Const.—Dept. of Highways & Traffic, D. C., Aug. 2, 1960. CONSTRUCTION OF SOUTHWEST FREEWAY INNER LOOP—7th St. to 11th St. (Federal-Aid Interstate Project No. I-95-1(20)1, Invitation No. C-6117-H, consisting of approx. 252,750 cu. yds. Unclassified Excavation; 61,950 lbs. Reinforcing Steel; 1,499,000 lbs. Structural Steel; and 16,102 Cu. Ft. Class A (dimensioned) masonry, Type 3. (Wage rates have been predetermined by the Labor Dept. and will be incl. in Addendum No. 1). "Pre-bid mtg. will be held to answer questions of bidders on the project on Aug. 31, 1960, 2:00 PM (EDT), Rm. 500, Dist. Bldg., 14th and E Sts., N.W., Wash., D. C." Bid forms, plans and specifications are now available from Supv., Bid & Contract Div., Procurement Office, D. C., Room 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer, (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EDT, Sept. 7, 1960, in Rm. 424, 499 Pa. Ave., N.W.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5391) will be received at St. Paul, Nebraska, until 10 a.m., Central Standard Time, September 27, 1960, for furnishing labor and materials for earthwork and structures, Sherman Feeder Canal, including tunnel, Station 656+48 to Station 1033+75, Farwell Unit, Nebraska, Missouri River Basin Project. Location near Arcadia, Nebraska. Principal items are 4,000,000 cu. yds. excavation for canal and drains and structures; constructing 0.39 mile of concrete-lined tunnel; 4,500 cu. yds. of concrete in structures and tunnel; and other work. Completion time 760 days. For particulars, address Bureau of Reclamation, P. O. Box 143, St. Paul, Nebraska; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5392) will be received at Clinton, Oklahoma, until 10 a.m., Central Standard Time, September 27, 1960, for furnishing labor and materials for steel water tanks for Foss Aqueduct, Washita Basin Project, Oklahoma. Location near Clinton, Oklahoma. Principal items are 7,755 cu. yds. excavation; Lump sums—furnishing and erecting steel tanks having the following capacities: one—1,900,000 gallon, one—357,000 gallon, and one—285,000 gallon; and other work. Completion time 480 days. For particulars, address Bureau of Reclamation, P. O. Box 1609, Amarillo, Texas; P. O. Box 146, Clinton, Oklahoma; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5389) will be received at Klamath Falls, Oregon, until 10 a.m., Pacific Standard Time, September 22, 1960, for furnishing labor and materials for earthwork and structures for laterals and drains, Sump 3, Contract Unit 1, Klamath Project, Oregon-California. Location near Tule Lake, California. Principal items are earthwork for about 6.4 miles of earth-lined laterals and 12.6 miles of open drains; deepening 9.2 miles of existing drains; furnishing and installing slide gates; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, P. O. Box 312, Klamath Falls, Oregon, or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

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SEND COPY TO: Official Proposal Division,
Engineering News-Record
Class. Adv. Div.,
P. O. Box 12, N. Y. 36, N. Y.

Bids: September 8, 1960

Soil Explorations and Foundation Investigations

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Advanced Eastern Standard Time, on September 8, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON VAN WYCK EXPRESSWAY, GRAND CENTRAL PARKWAY INTERCHANGE TO NORTHERN BOULEVARD-WHITESTONE PARKWAY INTERCHANGE IN QUEENS COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. SM-172.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) Mr. Austin M. Sarr, District Engineer, New York State Department of Public Works, 325 West Main Street, Babylon, Long Island, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal form is $5.00. Refunds of deposits for plans, specifications and proposals will be made *only* in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $60,925.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $3,500.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidder."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF
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Bids: September 15, 1960

Construction of Extensions to Water Filtration Plant

CITY OF TRENTON
NEW JERSEY

Sealed proposals for construction of Extensions to Water Filtration Plant will be received by the City Clerk of the City of Trenton, New Jersey at the Commission Chamber, City Hall, Trenton, New Jersey, until 2:00 P.M. Eastern Daylight Saving Time on September 15, 1960, after which time they will be publicly opened and read. No bids will be accepted after said hour. Proposals will be received on the following contracts:

GENERAL CONSTRUCTION CONTRACT 6
ELECTRICAL WORK CONTRACT 6E
HEATING AND VENTILATING CONTRACT 6H
PLUMBING ......CONTRACT 6P
STRUCTURAL STEEL CONTRACT 6S

Information for Bidders, Proposal Forms, Specimen Contract, Plans, Specifications and other pertinent Contract Documents may be examined at the offices of Bowe, Albertson & Associates, Engineers, 75 West Street, New York City 6, New York, and at the office of the Municipal Engineer—Water, Department of Public Works, Water Filtration Plant, John Fitch Way, Trenton, New Jersey between the hours of 10 A.M. and 4 P.M. daily except Saturdays, Sundays and holidays, and obtained at the office of said Municipal Engineer upon making a deposit of Twenty-Five ($25.00) dollars, which will be refunded to bidders only who apply for a refund within 30 days after the date when proposals are opened and who return the plans in good condition.

Extra copies of specifications may be obtained at the cost of Ten ($10.00) dollars each and extra copies of plans may be obtained at the cost of Five ($5.00) dollars each, which sums will not be refunded. Extra sheets of plans may be obtained at the cost of One ($1.00) dollar each, which sum will not be refunded.

Certified or cashier's check made payable to the order of the City of Trenton, New Jersey, in the amount of 5% of the bid must be deposited by the bidder with his bid as a guarantee that, in case a contract is awarded to him, he will execute such contract and furnish a satisfactory Performance Bond. Acceptance of the bid will be contingent upon fulfillment of this requirement by the bidder and on failure to do so, he shall forfeit the deposit.

The City of Trenton reserves the right to reject any or all bids, to waive any informalities or to accept the bid which in its judgment will be for the best interests of the City of Trenton.

CITY OF TRENTON, NEW JERSEY
By Stanley H. Maziarz
City Clerk

BOWE, ALBERTSON & ASSOCIATES,
Engineers

Bids: September 8, 1960

Soil Explorations and Foundation Investigations

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y. — Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on September 8, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 504, ALBANY TO COUSE, NEW PROJECT NUMBER 1-90-5(7) AND INTERSTATE ROUTE 541, INTERCHANGE WITH FAI 502 AT WASHINGTON AVENUE EXTENSION TO INTERCHANGE ROUTE 540 ON LOWER PATROON ISLAND, NEW PROJECT NUMBER 1-90-5(6)350 IN ALBANY AND RENSSELAER COUNTIES, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-164.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. G. L. Nickerson, District Engineer, New York State Department of Public Works, 353 Broadway, Albany 1, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposits for plans, specifications and proposals will be made *only* in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $65,300.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $3,500.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF
PUBLIC WORKS

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

SEPTEMBER 8TH
ISSUE
CLOSES
AUGUST 29TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Field Supervisor. Large established midwest consulting firm has permanent position in building construction supervision for thoroughly qualified and experienced man. Mechanical engineer preferred. Moving expenses paid. Send complete resume to P-4833, Engineering News-Record.

Civil Engineer, Graduate, with experience as project engineer in charge of design of urban and rural highways, streets and other municipal projects for consulting engineering firm. Location Southwest. P-5055, Engineering News-Record.

Estimator—Commercial, Industrial and Public Buildings. Engineering background desired. Opportunity for advancement. Please give experience resume and references. Kuhn Construction Co., Charleston, West Virginia.

Teaching and Research Assistantships are available to qualified students while working for M. S. or PH.D. degree in either solid or fluid mechanics. Write, Chairman, Dept. of Engineering Mechanics, University of Kansas, Lawrence, Kansas.

Senior Cost Engineer. Must be familiar with the Uniform System of Accounts for Electric Utilities. Duties will consist of analyzing completed major construction projects for an Electric Utility. Experience with the Federal Power Commission or a State Public Service Commission would be desirable. Some experience with the Property Record Department of any Electric Utility would also be an asset. Please send complete information on experience, references, salary requirements, and availability. Indianapolis Power & Light Co., 25 Monument Circle, Indianapolis 6, Indiana, Employment Division.

Village Engineer—The Village of Monona is accepting applications for the position of Village Engineer, education and experience requirements are: Graduate civil engineer, with general Municipal experience, should be a State of Wisconsin registered or eligible therefore within one year. Salary open. Write for application to: E. J. Lottes, Village Administrator, 5211-Schluter Road, Madison 4, Wisconsin. Population Village of Monona—8200.

Sales Engineer—For sales, engineering and estimating on pre-engineered metal building construction. Must be experienced on this type of work. P-5107, Engineering News-Record.

Structural Detailers & Checkers that make accurate & neat drawings. Min. experience 3 yrs. Duggan & Duggan Engineers, P.O. 476, Rossville, Ga., Chattanooga Ph. WY-8-8406.

Engineer, Excellent career opportunity for man 30 years of age or under. College degree in engineering, preferably mechanical or electrical, and some manufacturing experience required. Position is with a leading national food company's Chicago general office staff. In reply give complete personal data, experience and education. P-5138, Engineering News-Record.

Power Plant Superintendent for Municipal Power Plant—14,000 KW steam and 2910 KW diesel generating units. M. E. graduate preferred. Salary $600-$765 mo. Send complete resume to City Manager, Box 190, Woodstock, Illinois.

POSITIONS VACANT

Junior Engineer: Civil Engineer with municipal experience in Engineering Department of large, suburban community in northern New Jersey. Applicants will state qualifications and salary expected. P-5128, Engineering News-Record.

Chief Estimator for Estimating Department of growing Midwest General Construction-Design firm, specializing in industrial, commercial and public works. Must have proven record of preparing complete estimates, including quantity survey, pricing and research. Must have some experience in buying and expediting, and ability to manage men. Must be willing to travel. Permanent, well compensated, position for man with initiative and ambition, who can meet challenge of job. Send complete resume, including education, past experience references, and photograph, if available to P-5143, Engineering News-Record.

Civil Engineer—Registered Professional Engineer with at least six years experience, to assist in development and supervision of highway design and other diversified projects. Also EIT with at least two years experience. Consulting Engineer's office located New Jersey, Metropolitan area. Send resume and references to P-5142, Engineering News-Record.

• EMPLOYMENT SERVICE

Better Positions—$6,000 to $35,000. Want a substantial salary increase, more opportunity or different location? This national 49 year old service connects you with best openings. You pay us only nominal fee for negotiations: This we refund when employer pays placement fee. Present position protected. In complete confidence, write for particulars. R. W. Bixby, Inc., 559 Brisbane Bldg., Buffalo, N. Y.

• POSITIONS WANTED

Chief Estimator-Project Manager — Fully qualified to handle work from bidding stage to completion. Best of references. Building Construction, Heavy Construction, Sewage and Water Treatment Plants PW-5011, Engineering News-Record.

General or Project Superintendent, Mature, Sober, Aggressive, over 35 years experience, Bridges, Industrial foundations, cofferdams, caissons, concrete roads and grading. Now employed on multi-million expressway as general superintendent, an immediate change is desirable. Minimum $12,000.00 PW-5017, Engineering News-Record.

Engineer-Superintendent 51, CE P.E. (Penna.) good experience in all phases of general construction, highways, dams, water supply, heavy earth and rock, development housing, concrete structures. 4 years in Carribean Area. Capable of taking complete control, estimating, purchasing, hiring subs, owner negotiations. Presently self employed. U.S.A. min. $9,000, O.S. $12,000. George W. Berry, 1009 Sycamore Circle, Elmira, New York. Ph. REgent 2-0512.

Structural Engineer, P.E. Thoroughly experienced in institutional, commercial and industrial Bldg's. Desires association with architectural firm as Chief structural engineer. PW-4999, Engineering News-Record.

Land Development Engr.—Heavy experience in design and construction of sub divisions including land use, utilities, roads, golf courses, etc. seeks administrative position with developer or contractor. Recently returned from South America and am free to relocate. Age: 33, married. PW-5115, Engineering News-Record.

POSITIONS WANTED

Manager of Construction—twenty-five corporate engineer in charge of progfitability analysis, cost estimating, scheduling, construction supervision and cost control for major process industry projects. On-time completions, minimum costs, smooth start-ups. PW-5133, Engineering News-Record.

Const. Manager-Superintendent: Registered Civil Eng. Connecticut Member ASCE. 30 years experience on general and heavy const. last 15 years at high level management and supervision covering design, contracting and completion of industrial and institutional buildings, housing projects, oil field facilities, pipe lines, pumping stations, refinery, roads and airfields. 15 years Latin American experience dealing with government officials and national personnel. Fluent Spanish. Location desired overseas but will relocate anywhere. R. Salmon, RFD Petersburg, New York. Tel. Hoosick Falls 1159-R.

Project Manager, Sup't., Estimator Piping, Instrumentation, Mat'ls. Handling, Heavy Industrial. Aged 43, 20 years in any phase invitation to turn key. Seeks management spot with future unlimited. Prefer West of Rockies. PW-5023, Engineering News-Record.

Purchasing Agent now with major firm seeks relocation. Extensive background in estimating, supervision and project managership. Top responsibility required. Will come for interview. PW-5024, Engineering News-Record.

Bridge, Structural & Highway Draftsman. Eventually can be designer. 10 years experience. (Civil Engineer in old country). PW-5028, Engineering News-Record.

Engineering Executive. Wide industrial, chemical and civil experience; all phases administration and management. Organize and direct large design jobs or work in consulting and exec. asst. capacities. Proposals, reports, contracts, liaison, trouble shooting. P.E. in 5 States. PW-4725, Engineering News-Record.

Executive, Manager, Engineer (General), age 47, BSCE, 25 yrs exp. all const. categories, 10 yrs as Deputy Installation Engineer at large Air Force Base directing the Maintenance, Operation, Programming, Planning, Engineering, Construction, Management, Fire Protection, and Crash Rescue activities. Desire to locate with aggressive company having gov. contract for similar responsibilities state side or overseas. Available September 30, or sooner. Resume furnished on request. $20,000 + exp. PW-5087, Engineering News-Record.

Materials Engineer with B.S.—Ch.E. desires a permanent location position in the Middle Atlantic States or southern New England. I have a good record of 11 years experience in testing, inspection, and supervision with 3 excellent firms with construction consultant experience. References supplied with resume. Available September, 1960. Write John T. Hutchinson, Lubec, Maine.

(Continued on opposite page)

When Answering
BOX NUMBERS . . .

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

CHEMICAL OR MECHANICAL ENGINEERS

One of the world's largest pharmaceutical companies has available varied and challenging assignments in Plant Engineering. About five years' experience required in the process industries. Applicants should be capable of assuming full responsibility for project design and coordination. Knowledge of construction methods and chemical maintenance desirable. If qualified, please send resume to:

Personnel Department
PARKE-DAVIS **Detroit 32, Mich.**

POSITIONS WANTED
(Continued from opposite page)

Office Manager—Vast experience construction and manufacturing accounting, systems set-up, structural and mechanical engineering training, read and write Spanish. PW-5101, Engineering News-Record.

Superintendent 20 years experience (rock & dirt) excavation and grading. Highways, levees, drainage. PW-5132, Engineering News-Record.

Construction Engineer, 38, Married. 12 years diversified experience in concrete and aggregate production, control and mix design. 3 years prestressed concrete, soils and foundations. Spanish speaking. Available Sept. 15 for foreign or domestic assignment. Resume on request. PW-5089, Engineering News-Record.

Construction Engineer—33, BCE, PE, 8 years field exp heavy construction. Wants to learn estimating, pricing, buying with small to medium sized contractor. N.Y.C. area. PW-5131, Engineering News-Record.

Young, hardworking Civil Engineering Graduate. Experience in urban and rural roadway design. Willing to accept foreign assignment immediately. PW-5130, Engineering News-Record.

Engineer. B.S.C.E., P.E., Graduate study. Ten years well rounded responsible experience including structural steel, concrete, and civil engineering for plants, buildings, and highway projects. Want position in New York area. PW-5129, Engineering News-Record.

Chief Estimator, 20 years successful experience bidding industrial, commercial, and institutional work, engineering background, desires connection with general contractor. PW-5120, Engineering News-Record.

Construction Office Man. Twelve years experience industrial and heavy projects. Payrolls, purchasing, cost accounting, subcontracts. PW-5121, Engineering News-Record.

Registered Engineer—Surveyor own office since 1947. Security clearance. Desire short assignments—inspections, confidential reports, instrument work. Eastern U.S., Canada. PW-5119, Engineering News-Record.

Construction Superintendent. Past performance project $500,000 to 67 million dollars. Completed 3% to 10% below estimated cost. PW-5118, Engineering News-Record.

Engineer desires to represent manufacturer or other company serving construction industry in western U.S., part or full time. Planning eastern visit in early Sept. to see interested parties. PW-5098, Engineering News-Record.

Civil Soils Engineer, B.S.C.E., M.S. Soil Mechanics, Registered N.Y., 36, ten years experience in administration, reports, foundations, civil and structural design. Seeks challenge. PW-5141, Engineering News-Record.

Asst. Supt. or Gen. Foreman, Age 40. 15 years experience in all phases of highway work, know methods, men & equipment. PW-5123, Engineering News-Record.

B.S.C.E.—30 single—3 years field experience —some office work, take off, checking shop drawings, etc. Desires work with General Contractor—will consider overseas assignment. PW-5112, Engineering News-Record.

Struct. Engr. 25 yrs office experience, steel and reinf. conc. investment considered. PW-5137, Engineering News-Record.

Construction Superintendent considerable experience on highway and railroad bridges. Complete charge from inception to completion now available, resume on request. PW-5140, Engineering News-Record.

WANTED
ENGINEERING ASSOCIATES

SANITATION WATER SUPPLY
(foreign & domestic)
PETROLEUM (foreign)
GEOLOGICAL & MINING (foreign)
CHEMICAL & PETRO-CHEMICAL
(foreign and domestic)
WATER RESOURCES (foreign)
HYDRO-ELECTRIC (domestic & foreign)
CONSTRUCTION (domestic & foreign)

President and Vice-President levels.
Complete charge of your own division.
Drawing account against substantial share of Division profits before tax PLUS income from own secured investment.
Minimum Investment $25,000.00
GLOBAL Activity—TOP Recognition

Send complete resume including photo to:

P. O. Box 968,
Station "B", Montreal, Quebec

ESTIMATOR, OFFICE ENGINEER

Experienced in commercial & industrial building construction. Permanent position with progressive contractor. North central Connecticut.

P-4926, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEERS DESIGNERS

Permanent positions with Arthur G. McKee & Company at their Cleveland offices for:

ENGINEERS, DESIGNERS, DRAFTSMEN

who are experienced in any type of Steel Plant or Steel Plant Equipment design. Applications will be kept confidential.

Send detailed resume and photo to:

G. VICTOR HOPKINS
ARTHUR G. McKEE & COMPANY
2300 Chester Ave. Cleveland 1, Ohio

PROJECT MANAGER

Heavy Industrial Construction
$15,000-$18,000 + bonus

To manage special and international projects for a major plate fabricator with multimillion dollar contracts as general contractor, subcontractor and on joint ventures. Great growth potential required as this is a rapidly growing part of company's total business. Ideal age 35 to 45; engineering degree preferred. Small company experience and full responsibility for estimating are musts. Reply to

P-5109, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Permanent openings for qualified

CIVIL

Several openings for experienced persons in design of structural steel and reinforced concrete applicable to design of Bridges and Buildings. Opening for Sanitary major in design of sewage and waste disposal systems.

ELECTRICAL

Need several in the design and layout of Power Plants, Test Facilities, Industrial and Institutional projects.

MECHANICAL

Several openings for men experienced on Process Piping design and layout, preparation of Flow Diagrams, and cost estimates.

Also openings for Designer-Detailers and Draftsmen.

Positions open to Engineers desiring long range employment with opportunity for professional development. Many company benefits, including paid vacations, sick leave, holidays. Excellent employee benefit plan.

Write fully, include complete experience and salary data.

SVERDRUP & PARCEL
ENGINEERING COMPANY
Engineers — Architects
915 Olive St., St. Louis 1, Mo.

ENGINEERS AND MATERIALS INSPECTORS *WANTED*

TVA has openings in a large hydro- and steam-electric program for experienced civil, structural, electrical, and mechanical engineers in its Division of Design located in Knoxville, Tennessee, and for materials engineers and inspectors of materials located in various district offices, principally in the north and east.

These positions are at the following grades and rates of pay:

Civil, Mechanical, Electrical and Materials Engineers, grades SD-2 and -3. . . . .$6400-$7400
Inspectors of Materials, grades SE-5 and -6. . . . .$5990-$6800

The engineering jobs require a college degree in engineering or its equivalent and from one to three years of experience in design and specification work, or in inspection and testing work for materials engineers. The inspector of materials jobs require some college training in engineering or equivalent training and experience in making engineering inspection and tests of mechanical, structural, and electrical equipment and materials.

All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, retirement, and medical and life insurance benefits.

Write to:

TENNESSEE VALLEY AUTHORITY
Division of Personnel
Knoxville, Tennessee

SEARCHLIGHT SECTION

CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

MOBILE CRANES

FOR SALE

Self-Propelled, One-Man Operated

COLES-CRANE, 8-top cap, 1952, 360 revolving boom, finger-tip control, pneu. tires. Located: Chicago $9,500

AUSTIN WESTERN CRANE, 5-ton cap at 10' radius, pneu. tires, 360 revolving hydraulic boom, 1956. Located: Penn. $10,500

KRANE KARS, 10-ton cap, 12'-18' telescopic boom, revolves 180; pneu. tires. Rebuilt. Located: N.Y.C. $8,500

KRANE KAR, 5-ton cap 12'-18' revolving telescopic boom, pneu. tires. Located: NYC. $5,500

KRANE KAR, 2½-ton cap, 12'-18' revolving boom, pneu. tires. Located: NYC. $3,500

A & A MACHINERY
1845 Bay Road, Miami Beach, Florida
JEfferson 2-4764

FOR SALE OR RENT

1—Cleveland Heavy Duty Mesh Bridge 20'-25' width 4 single flanged wheels—New
1—Marion 35-M Truck Crane with 60' boom—New
1—Lorain Model 820-K Diesel Shovel 2 Cu. Yd.—Used
1—Unit Model 1020 Shovel with GM Diesel Engine—Used
2—LeTourneau-Westinghouse C Tournatractors—Used
2—LeTourneau-Westinghouse Super A Tournapulls—Used

FURNIVAL MACHINERY CO.
54th & Lancaster Ave., Phila., 31, Pa.
TRinity 7-5200

GOOD BARGAIN

Model 27FD, 15 Ton Euclid Rear Dump
Model 2LD, 22 Ton Euclid Rear Dump
Model S-12, 12 cu. yd. Euclid Scraper
Model 60kw, General Motors Diesel Gen. Set

STANDARD EQUIPMENT CO.
340 Pierce St. Kingston, Pa.
Phone BUtler 8-1426

ROCK SHOVEL FOR SALE

"MARION" Model 362, 1½ yard with "CAT" D-13000 diesel engine, light plant and centralized lubrication system. Now being overhauled.

ARROW CONTRS EQUIP. CO. Chicago 32, Ill.
Phone FRontier 6-6500

FOR SALE

WASHINGTON WHIRLEY

Model 28-150-85 & excellent condition, now working but available for immediate shipment. For complete specifications, pictures and price contact:

EAGLE-WESTERN COMPANY
Box 1247, Fort Peck, Montana *Tel. JA 6-3227*

FOR SALE

NEW LARGE STORAGE TANKS

3—100,000-barrel Cone Roof Tanks. 134' dia. x 40' high, fabricated to API Specs, detailed prints available. Suitable grain storage, oil, water, other liquid storage.

Priced attractively, prompt shipment. Rome, New York.

MID-STATES PIPE AND SUPPLY CO.
LUther 2-9128 703 Philtower Bldg.
Tulsa, Oklahoma

USED STEEL

BEAMS—8" to 36" WF, H & I
CASING & PIPE 12" to 10' dia.
B.P.'s—PLATE—ANGLES

WANTED: YOUR SURPLUS STEEL

LEOPOLD COHEN IRON CO.
3000 S. Kedzie Ave., Chicago 23, Ill.

PIPE

Surplus New & Used

FOR SALE, WANTED OR RENT

Call: HYACINTH 7-4900

PIPE, VALVES & FITTINGS

PILING • CULVERTS
ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ALBERT PIPE SUPPLY CO., Inc.
103 VARICK AVE., BROOKLYN 37, N.Y

PIPE

2,000,000 ft.	2"	3.50# to the foot
1,000,000 ft.	3"	7.70#
1,000,000 ft.	4"	10.98#
500,000 ft.	6"	19.80#
200,000 ft.	8⅝"	28#
400,000 ft.	10¾"	35#
75,000 ft.	12¾"	40#
10,000 ft.	16"	42#

All No. 1 Grade Plain End and Cleaned

INDIANA-OHIO PIPE CO.
P. O. Box 5412 Shepard Station, Tel: CL-3-5527
COLUMBUS 19, OHIO

PIPE

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS

"H" BEARING PILE SLEEVES AND SHOES

K & M ASBESTOS CEMENT PIPE

CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

• FOR SALE

German CME theodolite. Like new, with accessories (internal illumination, field case, optical compass, oiler lens bursh, etc.). Less tripod, $495. Bob Grove, 922 Morewood, Rocky River, Ohio.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES [illegible] HAVE HELPED THOUSANDS to better [illegible] and to pass State Board Examinations Forty-eighth year

WILSON *Engineering Corp*
College House Offices HARVARD SQ. CAMBRIDGE MASS.

CONSTRUCTION SUPERVISION

Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.

National Schools of Construction
Est. 1952
Satsuma, Florida

Madsen Asphalt Plant, 4000#
Buffalo-Springfield, 3 axle tandem roller
Michigan Loader, 85A
Caterpillar, D-8 Bulldozers, 15A series
Bucyrus-Erie, 22B, w/backhoe, shovel front, crane
Bucyrus-Erie, 22B, Truckcrane—75' of boom
Bucyrus-Erie, 38B, w/shovel front, crane
Koehring, 34E, Dual Drum Paver

ALEXANDER CONSTRUCTION CO., INC.
P.O. Box 65, Chester, Pa. *Tel. HUbbard 5-5856*

AMERICAN 750 BC CRAWLER CRANE —S/N 6010, Cummins NHIP 600 Diesel Engine, 33" crawler pads, shovel front w/1½ yd. or 2 yd. ESCO Dipper. Machine operated 6 months on one job. $49,500.

(2) Le TOURNEAU—MODEL "D" ROADSTER TRACTOR SHOVELS. S/N #GT8277DRS, #GT7987DRQ, w/GMC-471 Diesel Engines, 18000 x 25 tires, air brakes, electric controls. Each $7500.

Industrial & Farm Equipment Corp.
3100 W 4 St., Chester, Pa.

Economy Forms

Miscellaneous sizes, Purchase Price $30,000.00. Owned by Joint Venture. Used on one project. Stored in Bridgeport, Conn.

CAMPANELLA & CARDI CONST. CO.
780 Jefferson Blvd., Warwick, R. I.
Tel: Regent 7-1300

SURVEYING INSTRUMENTS

USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS & LEVELS

Various Makes

NEW & REBUILT

Fully equipped modern shops — all makes and models repaired — all work guaranteed — prompt service — complete line field supplies.

INSTRUMENTS RENTED

Midwest Distributors for W. & L. E. Gurley and Wild Heerbrugg Instruments

NATIONAL BLUE PRINT CO.
Established 1914
210 S. Canal St. Chicago (6), Ill.

FOR SALE

AC HD 21 DOZER—9015
3—AC TS-360 Motor Scrapers—T1577-T1578-T1579
RANSOME 34-E PAVER—16114
JAEGER Concrete Spreader—CS-10
JAEGER Transverse Finisher—234
KOERING Longitudinal Finisher—LF-1431
BLAW-KNOX Sub-Grader—4BG3
10,000 Feet 9" x 9" Paving Forms
Backhoe & Loader (FERGUSON)—S-158891
Cat. #12 Grader—8T14288
JERSEY Stone Spreader—1069
LINCOLN 200-A Welder—223766
LINCOLN 300-A Welder—A168757
3—1600 gal. DISTRIBUTORS
T. D. 18-A ANGLE DOZER—23828
T. D. 18-A BULLDOZER—25075
OFFICE TRAILER (International)
Semi Trailer Asphalt Tank—2800 gal. with heat
Semi Trailer Asphalt Tank—5000 gal.
BUCYRUS ERIE 41B Pile Driver—10105
VULCAN 50C Pile Hammer—3985

THOMAS NICOL COMPANY
182 Hamilton Road Farmingdale, N. J.
Prospect 4-7300

DOUBLE DRUM HOIST

American, Model 55-B, 25 H.P. Electric motor, 220/440, 3 phase with transformer. 5500 lb. line pull, 300 Ft. per minute.

Excellent Condition. Priced to Sell

REID-HOLCOMB COMPANY, INC.
1815 KENTUCKY AVE.
INDIANAPOLIS 21, IND. ME 2-4433

RAILS-TIES

TRACK ACCESSORIES

35-lb.
RELAYER RAIL

Excellent Quality
Specially Priced

IMMEDIATE SHIPMENTS

Takeup of nearly 100 miles of major line is now underway—includes substantial tonnages of:

35# 50# 56# 60# 65#
70# 75# 80# 85# 90#
100# 110# 112# 132#

All rail is in excellent condition, can be furnished complete with Matching JOINT BARS & TIE PLATES and RAIL ANCHORS. Also 200,000 CROSS TIES in 8-ft. & 6-ft. lengths. Must be offered subject to prior sale.

Wire, Write or Phone for quotations:

L B FOSTER co

Los Angeles 5, Cal. DUnkirk 3-3156
Houston 2, Texas CApitol 7-4301
Pittsburgh, New York, Chicago, Atlanta, Cleveland

RAILS

MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W. VA.

PILE DRIVING EQUIPMENT

VULCAN AND McKIERNAN-TERRY
Steam Pile Hammers and Extractors

- DROP HAMMERS
- STEEL LEADS
- DRIVING CAPS
- PILE DRIVER HOSE
- HOISTS AND BOILERS
- STEEL SHEET PILING

CONMACO, INC.

DRexel 1-3930
820A KANSAS AVE.,
KANSAS CITY, KANS.

PUMPCRETE

Current Models Sale or Rent
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Keep Soil Types Simple

Engineers who have wrestled with the problem of soils classification for construction purposes, while envying the broad generalizations that seem to satisfy the geologists, are actually in clover in comparison with the agricultural specialists. One of the important questions at the Seventh International Soils Science Congress last week in Madison, Wis., concerned a classification system that recognizes several thousand types of soils.

Does this mean that engineers have shirked a duty in being satisfied with the 15 soil types in the classification originated by Prof. Arthur Casagrande, or with only the eight types in the Bureau of Public Roads classification? Does it mean that engineers have been any less scientific in designating a certain type of sandy soil with a prosaic A-1, as in the BPR list, or SC, as in the Casagrande classification, instead of calling it "psammid," the agricultural list name for a dry, sandy soil? ("Psammos" is Greek for sand, and "id" a contraction of arid.)

An affirmative answer to either of these questions would be entirely unwarranted. Upwards of a dozen types of soils are all that need to be recognized for engineering purposes, while presumably thousands of variations must be named to meet the requirements of agriculture.

Broadly, whether in engineering or agriculture, the purpose of soil classifications is to aid communication by providing common denominators of expression. Thus, agricultural experts in one country can more readily evaluate and apply methods of food production found useful in another country if they know what types of soil were involved. Engineering soil classifications serve exactly the same communication function, but the necessity for recognizing many minute variations in soils is not present—and for a very good reason.

This reason is simply stated: For engineering purposes variations in soil compositions, other than their broad divisions into sands, gravels, clays, silts and a few combinations thereof, are of less importance than physical characteristics which in any one location can be evaluated only by testing, observation and experience. What concerns the engineer most are such things as grain size, water content, compactibility, shear strength and the like. These are not readily classifiable.

One of the great strengths of the relatively new science of soil mechanics is that its experts have avoided the temptation to fit it into too tight a scientific straight jacket. By confining the recognizable types of soils to the minimum number needed for communication purposes—in conversation, correspondence, and technical articles and papers—and then concentrating on methods of evaluating and changing, if necessary, the load-carrying abilities of these soils, they have made the best possible contribution to the advancement of foundation engineering. They can learn from the geologists and the agricultural experts, but they need not and should not adopt their methods or philosophies, least of all in the matter of soils classification.

Seabees Still 'Can Do'

Correction of an erroneous statement concerning the Seabees, made in our Washington Observer page of August 11, offers a welcome opportunity to point out the important role this arm of the Navy's Civil Engineer Corps in the Bureau of Yards and Docks continues to play in Navy construction activities.

The misstatement, in an item discussing the Army Engineers and their contractual relationship with the Air Force on missile base construction, said Army Engineers would "resist going the way of the Navy's Seabees." When it was noted that the statement was erroneous and unrelated to the question being discussed, an effort was made to delete it, but it was unfortunately unsuccessful.

The impression given that the Navy's Seabees are a thing of the past is far from correct. They originally were, and still are, entirely concerned with Navy military construction overseas. Nor is their work comparable in any way with what the Army's Corps of Engineers does in letting contracts and supervising construction for the Air Force, or in civil works on rivers and harbors. The Seabees do only specialized construction jobs for the Navy.

The Navy's Seabees (Construction Battalions) were established in 1942 to build and maintain Navy installations in the overseas war theaters. Recruited from the construction industry, they performed remarkable feats in creating airfields and ports in remote locations, often under enemy fire. These activities constitute one of the truly great chapters in U.S. construction history. They also convinced the Navy that the Seabees should be a permanent part of the Navy establishment.

Following the war, active Seabee strength for peacetime was greatly reduced, but a large reserve, widely dispersed throughout the United States, was organized for quick mobilization in case of need. At present there are a number of Seabee units, both Mobile and Amphibious Construction Battalions, assigned to the Commanders of both the Pacific and Atlantic Fleets. In this service they provide a well-trained, ready construction and maintenance force for overseas shore facilities in support of the operation of Naval and Marine Corps combat forces. This was the Seabees' original assignment, and they are still fulfilling it, including the added modern tasks of assisting in the construction, maintenance and operation of missile and space vehicle facilities.

The Seabees' original motto, "Can Do," still echoes as their proud claim. They are still very much alive and deserve a salute for past achievements, present activities and readiness for future service, however big or wherever needed, throughout the world.

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